

This mode of preserving metal from rust does not only apply to sheet-iron, but also to manufactured iron in any form, as bolts, nuts, hinges, nails, &c., &c.  
For full particulars apply to S. Holland, 34, Gracechurch-street.



## Transactions of Scientific Bodies.

## MEETINGS IN THE ENSUING WEEK.

SOCIETY.	PLACE OF MEETING.	DAY.	HOUR.
Royal Botanic	Regent's-park	Saturday	4 P.M.
Medical	Bolt-court, Fleet-street	Monday	8 P.M.
Medical and Chirurgical	33, Berners-street	Tuesday	8 P.M.
Zoological	11, Hanover-square	Tuesday	8 P.M.
Pharmaceutical	17, Bloomsbury-square	Wednesday	9 P.M.
Royal	Somerset House	Thursday	8 P.M.
Antiquaries	Somerset House	Thursday	8 P.M.
Ed. Society of Literature	4, St. Martin's-place	Thursday	4 P.M.
Medico-Botanical	32, Sackville-street	Thursday	8 P.M.
Royal Institution	Albemarle-street	Friday	8 P.M.
Botanical	Bedford-st., Covent-garden	Friday	8 P.M.
Westminster Medical	32, Sackville-street	Saturday	8 P.M.
Mathematical	Crispin-street, Spitalfields	Saturday	8 P.M.

## ON ATMOSPHERIC RAILWAYS.

At the usual weekly meeting of the Society of Arts, on Wednesday last, the following highly interesting paper on Pilbrow's Atmospheric Railway without a valve was read by Dr. J. G. Hewlett. There was a very large attendance both of members and their friends, including some eminent gentlemen both in the scientific and literary world; among others, we noticed the Earl of Essex, A. White, Esq., G. B. Bolton, Esq., and other distinguished visitors. In the course of the evening, it was mentioned that his Royal Highness Prince Albert, having had an opportunity of witnessing the invention at the Marquis of Northampton's soirée, on Saturday fortnight, expressed his unqualified approbation, and even admiration, of it, entering into the most minute details, and informing himself of every particular connected with the discovery. We learn, also, that Sir Robert Peel has, after a careful inquiry into its principles and merits, evinced the liveliest interest in its ultimate success.

"In no subject, is an active, energetic, and commercial people more deeply interested than in the means for safe and expeditious intercommunication; and, as we have long maintained a high pre-eminence among the civilized nations of the earth, for our zeal, enterprise, and commerce, we can only expect to secure these honourable distinctions by affording every possible encouragement to those inventions and discoveries which have a tendency to bring the arts and sciences to the highest degree of culture and practical utility. The truth of this statement has been admitted; and yet a strange, but most decided, opposition has been raised to almost every remarkable invention that has been introduced during the last fifty years. The proposed locomotive steam-carriage was most violently opposed by the devout lovers of stage-coach travelling. The old times, and the old ways, were so much admired, that any innovation on the olden practices were dreaded with a terror—a little less than that felt at an approaching earthquake. That the whole host of interested parties should be opposed to a new and improved mode of travelling was no more than might be expected, because the doctrine of vested rights, as maintained and practically carried out in this country, had ever been a mighty barrier to all social and moral improvements. But that parties, who had no such rights to be jeopardized or damaged, should be opposed, must be matter of surprise to every reflecting mind. For not a few, both in Bristol and Birmingham, were to be found, who, on hearing of the respective railways proposing to accomplish twenty miles an hour, said, with much complacency,—"Let others venture their necks who please, but as for me I am quite contented to travel at the rate of ten miles an hour, including all stoppages, and think it is speed enough for any reasonable man." And so it was, according to the means employed,—means which involved no small amount of suffering and cruelty to animals. But now that locomotive power has become a general mode for the transmission of men and chattels, the very persons who were so timid, and so dreading consequences, are now among its warmest advocates and substantial patrons. Yet, this must not be regarded as an *ultimatum*; but merely a step in the ever advancing course of improvement. Seeing how former inventions have been treated, on their first introduction to public notice, by the populace at large, it is no more than experience has taught us, to expect that every bold invention, developing some new power, should meet with a similar treatment; and, upon this principle, a host of prejudices are arrayed against atmospheric railways.

The prejudices which have existed against former inventions, and subsequently given way to approbation and admiration of the highest order, induce the writer of this paper to think, that those prejudices arose from a want of information, and a consequent misapprehension of the whole invention. This is certainly the case in reference to many who are opposed to atmospheric railways; they talk of accidents occurring by this mode of travelling which mode, of necessity, be more fatal than accidents by the locomotive power. No mode of travelling can pledge an entire exemption from accidents. A small piece of orange peel on our ordinary pavements may occasion the death of the man who accidentally puts his foot upon it. But this is very different from a company of men looking pale with fear, dreading that a shower of pumpkins from the moon will dash them to pieces, when they have not as yet any credible testimony that there are pumpkin gardens in the moon. With the utmost respect for the fears of the timid, and the misconceptions of the uninformed, we venture to think, that a few plain matter-of-fact statements will have a tendency to dissipate their fears, and correct their misconceptions. Correct definition is the foundation of all sound information. The terms constantly employed on this topic are "locomotive power" and "atmospheric principle or power." Locomotive power is the mechanical force identifying itself with the carriages moved. Atmospheric power is a mechanical force acting on the carriages through different media—a force renewable at intervals on the line—so that the atmospheric power is often classed with the stationary, as the impulse, or cause of motion, is only at intervals, as in some railways, such as Blackwall, the rope by which the carriages are moved is put in motion by a power that is entirely fixed and distinct from the carriages themselves. The history of atmospheric railways will satisfactorily show that the principle is not so new—and, consequently, the plans constructed on it by no means so *jeune* and immature—as some imagine. If seven cities have contended for the honour of being the birthplace of Homer, it is no wonder that many persons who have had thoughts and imaginings on the subject should contend for the honour of being the inventor of the atmospheric mode of propulsion.

There are some difficulties in tracing this Nile to its right source; the first authentic data, however, which we have immediately connected with the subject, is the publication of a pamphlet in 1810 by Mr. Medhurst, in London, in which he proposed the idea of employing the power of the atmosphere created in an extended tube laid between the rails, and communicating the moving power thus obtained to propel carriages travelling on a road. Mr. Pinkus, however, asserts that Mr. Medhurst only proposed the impracticable plan of Papin's plan of forcing air under the compression of many atmospheres, as several others before him had done, adding, at a subsequent date, the idea of moving a piston through an underground tunnel, by forcing in air behind it, from distances of twenty miles apart, and, by means of such piston and tunnel, impelling passengers and goods. Medhurst's first plan was to convey letters and goods by means of rarefaction and compression of air in a channel six feet high and five feet wide, contained in a paved road or iron railway. Mr. Medhurst, it should be observed, took out no patent, performed no experiments, and distributed his pamphlets chiefly among his friends; so great controversy has always existed as to the legitimacy and extent of his claims. In 1824 he contested his claims to invention, in a paper war with Mr. Valance; and in 1840 Mr. Pinkus contested them. In 1817 Mr. Lewis proposed a plan, which was a modification of that of Medhurst's. In 1824 Mr. Valance took out a patent for his method of an underground tunnel, also availing himself of rarefaction and atmospheric pressure. Mr. Valance made experiments with his system at Brighton, but does not appear to have been successful, so that his patent produced him no return, while Mr. Medhurst claimed priority of the invention.

There is, however, strong reason for deciding that Mr. Valance first proposed employing the power of the atmosphere against a vacuum for railway purposes, as Mr. Medhurst did a *plenum*. In 1828 Mr. Medhurst re-published his pamphlet of 1810, and he then proposed to use a tube comparatively much smaller, to enclose a piston in it, and to transmit its action to the outside through a longitudinal opening; he proposed also to have stationary engines twenty miles apart, for forcing in air. Of this plan he published a drawing, showing a long box, and a pipe suspended over a channel of water, in order to make a water joint or valve. According to the assertions of some of his friends, he made experiments with this and failed, from the impossibility, explicitly says one, of making the continuous communication from the inside of the pipe to the carriage, tight enough to allow a useful degree of rarefaction to be produced; Mr. Pinkus, however, says he was well informed that Mr. Medhurst never made a single experiment. The suggestion of that mode of railway transit appears to be fairly due to Mr. Medhurst; the important step of creating a vacuum before the piston belongs to Mr. Valance, while the further improvement of attaching the piston to an external carriage is disputed by Mr. Medhurst and Mr. Pinkus; Mr. Medhurst's pamphlet is certainly the first publication, while Mr. Pinkus quotes no evidence as to his own claims. On the 1st of March, 1834, Mr. Pinkus brought out his first patent; and in this he proposed as a valve, one in the form of a cord or rope, and which he calls a valvular cord. Mr. Pinkus states that in 1830 he had again prepared fresh plans and specifications, such as are now enrolled, and that he had exhibited them to his friends, and in 1833 commenced his patent. In 1834 he constructed a large working model, which was publicly exhibited in Wigmore-street; according to the Samuda advocates, the experiments were a complete failure; but in 1836 an association was formed for working under Mr. Pinkus's principle, and contracts were made for works, to demonstrate the principle. In 1836 Mr. Pinkus took out another patent for this country, with improvements, and also for foreign countries; in this the valve was formed of iron plates, secured to felt, to lay against pieces of wood, which he proposes to fix to the inner sides of the trough, as presenting a smoother surface than cast-iron; he also described a spring copper valve, fastened at its foot to the pipe, and meeting at the top, in

the shape of an inverted V. The system was then called the pneumatic system, and excited a good deal of attention, and much controversy. At this period works were designed to be applied on the West London Railway at Wormwood Scrubbs; the works nearly completed a line half a mile in length, formed on the margin of the Kensington Canal, which was united with that line of railway; Messrs. Samuda and Haque were the contractors for the engines, the former also for the mains and valves. Mr. Clegg is claimed by Mr. Pinkus as having been at that time confidentially employed and consulted by him, and as having witnessed the progress of the experiments; to these assertions of Mr. Pinkus we have not seen a satisfactory answer; certain it is, that on the 3d of January, 1839, a patent was taken out by Messrs. Clegg and Samuda, from which practical results have been obtained.

The grand principle of the improved atmospheric plan, up to this period, was in hermetically sealing the valve with a composition each time the train passed. In 1838, experiments had been made on this plan at Chailott, through the exertions of Mr. James Bonifit. Next, an extensive experiment was performed on Wormwood Scrubbs, on the West London Railway, Mr. Pinkus's apparatus having been removed, his company falling to the ground for want of funds. The portion of the line selected was half a mile long, with a rise of 1 in 120 for rather more than half the distance, and 1 in 115 for the remainder. On the 11th June, 1840, this line was opened for experiments, and these were attended with sufficient success, and so far sanctioned by the approval of eminent engineers, as to justify further proceedings. We should observe, that on the 3d August, 1839, Mr. Pinkus obtained a third patent, in which he describes a valve and composition precisely similar to Clegg and Samuda's; on the 24th March, 1841, a fourth, where he proposes a gaso-pneumatic power. About 1841, Mr. Bonifit set up at Havre, in the factory of M. Nilbus, machinery for manufacturing Clegg and Samuda's valve. At the close of 1843, Clegg and Samuda's plan was laid down on the Dalkey line for the short distance of one mile and a quarter; this is a continuation of the Dublin and Kingstown line. And in the subsequent history of atmospheric railways, we have last—but, as we imagine, not least—the extraordinary but simple invention of Mr. James Pilbrow, which obtained a patent on the 18th November, 1844; this invention does away with the continuous valve altogether, having many other advantages which preceding inventions cannot claim.

As the two plans which now chiefly engage the attention of the public are that of Messrs. Clegg and Samuda, and that of Mr. Pilbrow, we purpose, in a subsequent part of this paper, to give a minute description of each of these plans, and a comparative estimate of both. At present we invite your attention to the general advantages of the atmospheric system above steam locomotive power. A diminution of expenditure is one of the most obvious advantages. In the original outlay there is not a necessity for that extensive levelling as is now required; engines of very great power will not be needed; the wear and tear of materials will be diminished; and, by consequence, the rates of charges for travelling will be lessened, and cheap travelling will be secured with a certainty of increased safety and comfort. This advantage of safety is one of paramount importance. The atmospheric system precludes all the terrible calamities of bursting boilers and burning trains, with which the public has become painfully familiar. Running off the line is also avoided; since, in the atmospheric system, the impelling power is at the centre of gravity, and must, from its action, keep the train on the rails. A collision of trains, from which such disastrous results have arisen, cannot possibly take place on the atmospheric principle. Then, not to enter into any metaphysical discussion of the question, how much the very consciousness of safety promotes our comfort—it may suffice to say, that the atmospheric system offers a full enjoyment of the pure atmosphere of heaven as you quietly glide on by an invisible power, and an entire freedom from the clanking of cumbersome machinery, flying sparks, hot cinders, and strong sulphuretted hydrogen. Another advantage is, increased speed—the average rate of travelling by the atmospheric power, being fifty miles an hour, while the highest velocity of travelling on the fastest line, by steam, is thirty miles an hour; and, in a country where time is appreciated as property of great value, this must be considered of paramount importance, did it exist alone; but when speed can be secured at less expense, and with increased safety and comfort, no doubt can exist, to which system the most decided preference is to be given. The plans of atmospheric railways, now fairly before the public, claim our particular attention. The first we notice, is that of Clegg and Samuda; and we cannot do better than give the description drawn up by Mr. Arago. We shall now say a few words on the manner in which they have contrived to establish an immediate and unyielding connexion between the piston, on which the atmosphere acts as a moving power, and the leading carriage of a train, running outside the tube on the ordinary rails. This inflexible connexion, of which we have just spoken, could not be established conveniently, except by means of a metal rod passing from the piston to the carriage. Now, as it is necessary that this connexion should be maintained during the entire course of the piston, there must be a longitudinal opening in the upper surface of the tube. It is along this upper slit that the metal arm travels, by means of which the movement of the piston is communicated to the leading carriage of the train, and thence to all the others. This rod, or arm, has been very justly called the connecting or moving arm, or plate. But, it may be asked, if there is an opening in the tube, how is the vacuum to be produced? We give the reply. The opening is continued the whole length of a valve, by which it is hermetically closed; the vacuum can be thus successively produced in that part of the tube to the left and right of the piston, as in the closed tube, of which we have spoken in the commencement. By a movement, to which we shall presently refer, the valve is partially opened near the piston, so as to let the connecting plate pass; after which it immediately falls by its own weight. This is the most delicate part of the apparatus. If the valve accurately closes the opening, a perfect vacuum is produced and maintained, by which we obtain a permanent and powerful moving force. On the contrary, should the valve allow the air to enter by any fissure, we cannot produce a sufficient vacuum, but by having recourse to a very powerful air-pump—and, moreover, this imperfect vacuum can only be supported by the continual action of the pump. The longitudinal valve, which closes the opening of the tube, is formed of a strip of leather of indefinite length, strengthened above and below by a series of iron plates of about a foot long, and not leaving a space between them of more than three-eighths of an inch. Weight is thus given to the valve without destroying its elasticity. The leather is closely and hermetically fastened by one of its edges to one side of the opening. The other edge remains unattached and moveable; and, when the valve is closed, it merely rests on the second lip of the opening, which has been previously covered in its entire length, by a composition of wax or tallow. When the valve opens, that edge of the leather fastened to the tube bends, and thus acts as a true hinge. The valve is never raised to a perpendicular position; its movement never exceeds an angle of 45 deg. The mere falling of the valve by its own weight does not give it sufficient adherence to the edge of the opening, so as to prevent the entrance of air into the tube; therefore, it scarcely resumes its place before it is heavily pressed by a wheel fixed at the back of the leading carriage, to which also is attached a cylinder filled with burning charcoal, for the purpose of melting the composition of tallow and wax, by which the valve is held down. This is a full description of the Clegg and Samuda atmospheric railway. Did time allow, we might also notice a similar plan by M. Hallette, of Arras.

We come now to notice the invention by Mr. Pilbrow, C.E., for which a patent has been taken out. Now, this invention does not appear to be, like many of its predecessors, a mere improvement in some mechanical detail, but seems rather to be a new creation—a new system altogether. It might be asked, where Clegg and Samuda's patent differs from Pinkus's, &c., or what have Clegg and Samuda done? but no one will find it necessary to investigate far to discover the difference here—no one will ask that question as to Pilbrow's. By this plan, the necessity for the continuous valve running along the upper part of the tube is entirely avoided; the connection between the propulsive principle within and the carriages without being obtained in a manner entirely distinct. The propulsion tube, instead of being broken, or stopped at intervals of a few miles, extends unbroken for the whole distance. At intervals on the top of the propulsion tube—say, every thirty feet—there are placed boxes and supports. Within these boxes are cogged wheels or smooth-surfaced wheels (a combination of the two, as the model is now before you), working horizontally on an axle, or shaft, the upper portion of which passes through an aperture in the top of the box, and at the outside or above these boxes, the same axles are made to bear rollers or wheels similar to those inside the box. The passages through which the shaft pass are rendered air-tight by the shoulders of flat fillet turned upon the shafts. [The lecturer referred to diagrams.] Attached to the propulsion piston is a long rod, or bar, nearly fitting the small square channel, or tube cast upon the propulsion tube, and running along with the piston, is conducted by this smaller tube between the lower wheels. Either side of this bar is covered with cogs, or is smooth, or a combination of the two, as the case may be. [The lecturer referred to diagrams and model.] corresponding with the surface of the wheels within the boxes above described. It should be mentioned also, that these wheels, or rollers, are made to project in a slight degree within the smaller tube. [The lecturer pointed out the distinction between the adhesion and cog plan; the latter not being indispensable, but, on the contrary, these are arrangements which many prefer.] As to the model in particular, which meets all the objections raised against other forms or arrangements of this invention, the manner of working the apparatus is simply this—the air being exhausted from the propulsion tube, the piston with its rod attached, is moved along inside it by the pressure of external atmosphere; and, as it moves, the rod works on the wheels on the inside, turns them round, and as they turn the wheels outside, the boxes turn also. These external wheels are then made to act upon the train, by means of a rod attached to it, similar to that attached to the piston within; and thus, as the piston moves along inside the tube, the first carriage of the train moves along also over it outside the tube, through the medium of this double set of wheels and rods.

In attempting to give a comparative estimate of these two plans, it is right to state that Clegg and Samuda's plan has most of the general advantages which atmospheric railways have over the present locomotive principle. The great distinction, however, between the system of Messrs. Samuda and that of Mr. Pilbrow is this—that in the former the connexion between the carriage

train and the propulsion piston is direct; in the latter it is indirect, a third medium being employed. Another important distinction is that the Samuda system has the propulsion tube aboveground, and has insuperable difficulties in crossing roads, and in intersecting other lines; the Pilbrow invention placing the tube below the surface, gets rid of all the objections in regard to crossing and diverging lines from the main trunk. The continuous valve of the Samuda plan must necessarily occasion much leakage, while the Pilbrow plan, dispensing with the valve altogether, no leakage from that cause can possibly arise. The leakage of Samuda's plan is equal to 5-horse power per mile, but Pilbrow's only 2½-horse power during the whole time of working every ten miles; the Samuda plan requires an exhausting engine at short intervals of about two miles and half; the Pilbrow plan can be worked with only one engine at the interval of ten miles. The Samuda plan is remarkably complex, and, therefore, may be subject to frequent interruptions for repairs. As Mr. Arago inquires—"Can we hope for future success from a system, into which enters, as principal agents, a strip of leather of immense length, a composition of wax and tallow, and a hot iron to dissolve the wax?" Now, the Pilbrow plan is remarkable for its simplicity, and the fewness of agents employed. It is much to be lamented that the Pilbrow plan has been attacked, and difficulties ascribed to it, for which no grounds whatever exist—difficulties which have no existence whatever, but in the imagination of the objector. Even these imagined difficulties must be frankly met, such as "the fine ground metallic surfaces of the wheels soon being injured;" "the friction and wear of the axles by dust;" but the most formidable objection was stated against the use of cogs—that great speed would certainly break or strip the cogs. Now, the inventor has stated in his pamphlet, and in this room (January 8), that you may dispense with the cogs, and make use of adhesion, or a combination of the two, at high velocities, though it is right here to state, that an experiment has been made with the cogs at the rate of fifty-five miles per hour, and they did not break or strip. It, however, would be perfectly useless, to spend time in refuting objections, which have been either anticipated or already proved groundless.

## X THE ATMOSPHERIC SYSTEM.

The interest in the issue of this discovery is gaining ground daily, and we anticipate that, before long, its merits will be satisfactorily tested and decided. The mention made of it by the Board of Trade in two separate notifications, has attracted the attention of the public and Parliament. The first allusion was in the report on the Newcastle and Berwick Railways, when the Board stated, "It was impossible not to feel the highest interest in the progress of an experiment, where success hitherto has been sufficient to induce eminent authorities to entertain strong hopes that the result may be an acceleration of speed in travelling, combined with the general introduction of a system of very frequent trains and low fares." In the same report they said, that in a mechanical point of view, the experiment at Dalkey might be considered as "conclusive of the success of the atmospheric system," and that it demonstrated "that trains may be propelled by means of it at high velocities, with safety and convenience to the public," and that "the same result may be obtained when the separate consecutive portions of the line are multiplied indefinitely." But then, they added, that "in a practical and commercial point of view,"—viz: that of expense, "they cannot yet assume, in forming a judgment upon competing schemes, the success of the atmospheric system, and they, therefore, come to the conclusion, that they must compare competing lines apart from all considerations as to the atmospheric system." The patentees, feeling aggrieved at this qualified approbation, and foreseeing that faint praise might prove as injurious as more decided hostility, petitioned Parliament for the appointment of a select committee to enquire into the merits of the system. The discussion that was elicited by this application must have been important and highly gratifying to the inventors. Lord Howick stated, that he believed the atmospheric system as superior to the existing railroads, as those railroads were to the old turnpike roads. This language is strong; but scarcely more so than the subsequent avowal of the Premier—"Let it be understood (said Sir R. Peel) that my impressions are strongly in favour of the atmospheric system." This coming from such an influential source will not be without its effect; and should the experiments now in anticipation succeed, the principle, supported as it will be by Government, will remain no longer in abeyance. Those practical experiments, too, are first progressing to completion. The works on the Croydon and Epsom line are in a considerable state of advance, and it is anticipated that operations will be commenced on the 1st of May. It is intended, in the first instance, to open only five miles of the railway, commencing at the Dartmouth Arms, and terminating at Croydon; although the whole length of the line, when completed, will be eighteen miles and a half. The chief reason for opening this section of the line is, so that the Government and the public may have as early an opportunity as possible of judging the efficiency of the system. At other sections of the line, the greater portion of the works is completed, including the preparations for the electric telegraph. The results of this trial are looked forward to with intense anxiety, not only as effecting the feasibility of the system, but the resumption of many operations suspended in the interim. It was only on Saturday last that the Board of Trade, in the course of an elaborate report on the construction of various lines, in connection with the metropolis, recommended the postponement, till the experiment of the Atmospheric Railway, from London to Epsom, shall have been put in execution, of the Epsom and Dorking—London and Croydon (Dorking Branch)—London and Brighton (Dorking Branch)—and South-Eastern (Reigate and Dorking Branch)—adding, "if the atmospheric system of propulsion should prove successful and deserving of further adoption, it would seem to be better suited than the locomotive system of traction to the nature of this section of country. The whole question of railway communication with Dorking may be temporarily postponed without any inconvenience, and if hereafter the atmospheric system should prove available, the line from Epsom to Dorking, projected upon that principle, would appear to be the best adapted for supplying the wants of Dorking and its vicinity, without incurring the expense of making so many additional miles of railway." The issue, therefore, of the approaching trial, coupled with the report of the select committee, which was granted by the House of Commons, will be decisive at the same time of great private claims, vast corporate interests, and national considerations of no insignificant importance.

The committee have since been appointed, on the motion of Mr. Shaw, and consists of Lord H. Vane, Viscount Howick and Mahon, Sirs C. Lemon and G. Clerk, and Messrs. Shaw, B. Baring, F. Baring, Hawes, H. Hinde, Morrison, Parkinson, G. Craig, Lancelotti, and Wyse.

ON COMPACT ALUMINUM.—Prof. Wohler read a paper on this subject at the Royal Society. The author has lately found, contrary to the results of his former researches on aluminum, that this metal is readily fusible, and that in its reduction from the chloride of potassium it presents itself in the form of fused globules, generally so small that their shape is not distinguished under the microscope, although occasionally they are met with having a sensible diameter. He effects the reduction at once in a clay crucible, the bottom of which he covers with pellets of pure potassium, and places upon these the chloride of aluminum, covering the whole with chloride of potassium in powder. The crucible being then closed up, and heated in a coal fire, the reduction is instantly effected. Fused aluminum has the colour and lustre of polished tin; it continues perfectly white in the air; it is malleable, and the globules may be beaten out into the thinnest plates without cracking at the edges; it is entirely un-magnetic. In other respects, the metal in this compact state has the properties which the author formerly ascribed to it.

MINIATURE STEAM ENGINE.—An ingenious watchmaker and jeweller, at the Royal Polytechnic Institution, has just completed the model of a high-pressure steam-engine, so made that it stands on a four-penny piece with ground to spare. It is the most curious specimen of minute workmanship ever seen; each part being made according to scale, and the whole occupying so small a space, that, with the exception of the fly-wheel, it may be covered with a thimble. It is not simply a model outwardly—it works with the greatest activity by means of atmospheric pressure (in lieu of steam); and the motion of the little thing, as its parts are seen labouring and heaving under the first influence, is indescribably curious and beautiful. Some months have been expended upon the structure of this lilliputian engine by Mr. Warner, and the difficulty of the undertaking may be easily considered, when it is remembered how minute the valves and pistons, sockets, screws, and hidden apparatus must be, and how accurately they must have been modelled and fitted to insure unbroken functional motion. It is altogether a very pretty toy, and an extraordinary instance of what patience, perseverance, and expert artizanship can accomplish. But Mr. Warner is a practised hand at such curiosities. His case abounds in articles manufactured for elfin use. He has scissors so minute that some hundreds go to an ounce, and there are knives belonging to the same family, which are made as they open to shut with a smart click. Quantities of other things are there of a like kind, made with the greatest neatness, requiring eyes of microscopic clearness to ascertain their full perfection. Mr. Warner, we should imagine, works exclusively for the fairies; no doubt he is entitled, by letters patent, to wear Oberon's arms over the door.

MONSTER ROPE.—Messrs. Haggie Brothers, of the Patent Rope, South Shore, Gateshead, have just completed a rope for the Liverpool and Manchester Railway Company, which is three miles in length, eight inches in circumference, and thirteen tons in weight. It is a white rope, which is an unusual circumstance, but it is intended to be used in the tunnel on the incline plane from Liverpool to the Edgell station.—*Newcastle Advertiser.*

IMPROVED COFFEE FILTERER.—We have been favoured with the sight of a very ingenious coffee filterer, invented by Mr. Madden, of George-street, Adelphi. It is an improvement, or rather addition, to the old French filterer, the objection to which was, that the extract did not with sufficient facility escape through the sieve. This inconvenience is obviated by the application of a screw, with a feather of about an inch and a half projection, and closely perforated. Between this the coffee is placed, and the water easily passing through gives an extract at once much stronger and more refined than by the old process.



## CHILI—ITS MINERAL AND OTHER RESOURCES.—No. II.

Comparative Observations of the Mines of Mexico with those of Chili, relative to their qualities and their advantages, according to information furnished by SENOR DON HILARIO PULINI, Director-General of Public Works to the Republic of Chili, at present on a special commission in Europe.

There has been formed in England, a great renown of the mines of Mexico, in consequence of companies having been organised for some years, but not because they have given a favourable result up to the present moment, and without having the slightest probability that they ever will produce a lucrative return, for the following reasons:—

1. That when these companies were formed in this country, to restore the mines of Mexico which had been abandoned, it being impossible to continue working them, because the metals progressively diminished in richness, and the expenses, on the contrary, augmented in proportion as the water increased—as the mines, it must be known, were inundated.

2. The companies were made to believe that the state of these mines, nearly abandoned, was not in consequence of the above reasons, but only that it was impossible to keep them perfectly dry by the former method adopted, but that, with steam-engines and machinery, the expense would be scarcely perceptible, and that they would be able to recommence drawing up the hidden riches. But they did not let them know that the mines had not been worked in a proper manner—it never having been the custom in the Americas to think of that fatal enemy—the water.

In consequence of not having foreseen this inconvenience, as all the mining operations in that country were begun at nearly the same period, and to arrive at this hindrance (which at present is general in all the mines of America), it was necessary to work for a long time before they could discover the evil, and it was only then that they found out the manner they should be worked, by applying at all times machinery to overcome this obstacle.

The mines, as already noticed, not being in a fit state to receive any class of machines, it then became necessary to undertake the sinking of fresh wells at an enormous expense, so as to form new communications, and to unite the waters at the same point, to enable the machines to have sufficient element to work in.

All this was obtained at a great outlay, and the companies began to restore the old mines, of great renown! because in ancient times they were reported to have been very productive; for which very reason they ought not to have considered them good, as it is well known that those of former times which had been worked no longer existed; and now that they are able to extract all their richness, they find that these reports have proved false, which has been the fatal ruin of the companies. What has been said is to prove to the world, that no one should ever undertake (no matter how promising the aspect and great the illusion) the working of old mines buried in water—and with another great imperfection, that these mines had never been constructed to render them adapted to machinery; and finally, those that were of great renown for their vast riches, having yielded very large capitals, for the same reason of being thus exhausted, have proved a failure.

I will now explain the manner in which companies should be formed, the class of works they should undertake, the reality of the results, and the certainty of an advantageous return.—All companies that may form themselves with the object of undertaking mining operations should observe, as a maxim, that they should never contemplate the renewing the working of mines that have already been worked, for the above reasons; because, in South America the working is nothing in comparison with what remains to be discovered, by crossing the veins in every direction; with this principle, I will observe, that all companies that are formed with the object of speculating in mining pursuits, ought first of all to fix the point to which they have the intention of directing their operations, according to the most correct and favourable information they may have received. They should commission well practised persons of the country, assisted with others who enjoy the perfect confidence of the company at home, with precise instructions to explore that part, and that such research should be followed up until they discover some rich mines, which, from the superficiality of the earth, will show its inward and valuable resources. This work would not be very long, and not exceed four or five months, which would be sufficient time to discover something advantageous. But they must penetrate those parts where there are neither roads nor paths, and which have never been explored by man; with these methods, they will be certain to find numerous veins from which to choose, and the expenses would be but trifling, as the excavations required are not very great, and the metallic ore itself would soon repay the outlay. To avoid every inconvenience, and that the company should proceed with certainty, it should be constituted, with a portion of its directors, selected from the influential miners, and rich respectable natives, of the country in which they direct their speculations, because these gentlemen, being professionals in the country, and without being obliged to make any geological essays of that part with which they are well acquainted, and knowing what is necessary to be done, can advise the others, who are foreigners, although they may be most skillful and scientific; but, above all, respectable natives can, with their influence, overcome all those difficulties that are likely to occur, which foreigners, however distinguished they may be, cannot have that influence, nor obtain those concessions that a native of the country would.

Another advantage in undertaking new veins after exploring, is that the new mines thus discovered can be commenced to be worked in that manner, so as to leave a free current of the water, and, when this cannot be done, the works should be so pursued, that they can apply, at all times, machinery, without being obliged to incur fresh expenses in arranging the mine. Mexico has already all her mines much worked, and for exploring there is very little to be done, from the want of a plentiful supply of water and fuel, the high price of wages, &c., which are the greatest obstacles.

I will now make a few remarks on the subject of the advantages which the republic of Chili presents. This new state offers a great many more facilities for mining enterprises, because its soil is very fertile and abundant, its rivers are filled with water, and not much dispersed, provisions are cheap, labourers for working of mines are not scarce, and at moderate wages. That in this part of America the metallic veins are in great profusion, nearly all of good quality from the surface of the earth, and not covered, which is one of the greatest advantages to explorers,—as every mineralogist well appreciates the value of these circumstances, with all the virgin veins,—the Government will render every facility in its power to encourage mining operations, and with all these circumstances united, is the short distance, which assists in the conveyance of these metals, and the trifling export duty which is enacted. They have lately discovered in Chili that coal exists in great abundance, and of a very good quality, which, with its inexhaustible forests, offers the greatest advantages to the formation of companies to explore its extensive Cordilleras, and as these immense mountains have the veins vertical and oblique, and nearly uncovered, so that with very little perseverance their richness will easily be discovered, giving a convincing proof of an advantageous result. To this must be added that there are experienced and practical men in the country, and of the greatest probity, who, if there was to be formed a company or companies, with a portion of the directors being respectable and intelligent citizens of the country; as they, united with the other foreign directors, and agreeing together, could determine on the most suitable plans that the case may require, and always acting in unanimity with those in Europe, would give this advantage—that they could avail themselves of every influence, and overcome any obstacles that might occur.

The experienced engineer, SENOR PULINI, whom the intelligent Government of Chili have made a choice of, in consequence of his activity, have confided to him a special commission, both scientific and industrious, which was given to him signed by the President, dated the 11th of December, 1843, authorising him to try the best means of overcoming all the difficulties that may effect useful enterprises for his country. This engineer having been for a long time as head director of the mines, and in researches in different parts of America, Bolivia, Peru, and Chili; and having a large practice in all mineral undertakings, as well as a most profound, theoretical, and practical knowledge, he has been welcomed and distinguished by some of our most respectable societies, by electing him one of their members, among whom may be named the Royal Geographical Society, the Royal Agricultural Society, the Royal Society of Arts, &c.; all these demonstrations have made him ever grateful to the English nation, and his accomplishments being as stated, he will do everything in his power, out of gratitude for these marks of favour, in confirming the veracity of the observations made for undertaking extensive explorations, for the purpose of discovering the mineral veins of Chili. Having at their head an intelligent and trustworthy person, such an enterprise can be accomplished with a great certainty; and, after making discoveries, works can then be commenced for the purpose of mining operations.

(To be continued in next week's Journal.)

## Proceedings of Public Companies.

## MEETINGS IN THE ENSUING WEEK.

TUESDAY.—Canada Company, at One. Thursday.—Family Endowment Society, at Two.—British American Land Co., at Two. Saturday.—Economic Life Association, at Two.—Horsebridge Mining Co., at One.

## CARN BREA MINING COMPANY.

The annual meeting of the shareholders of this company was held at the offices, Broad-street-buildings, on Wednesday, the 19th instant.—MR. HARRISON (in the temporary absence of the chairman, Mr. VIGORS) presided.

The SECRETARY (Mr. Macdonnell) having read the minutes of the last meeting, submitted the following report and balance-sheet for the approval of the shareholders:—

The committee have had a statement of the receipts and expenditure of the year 1844 prepared for the meeting, which exhibits a balance of £150, 19s. 6d. in favour of the company. The committee beg leave to refer the shareholders to the letter just received from Captain Lyle, giving a very pleasing account of the state and prospects of the mine. With regard to the promise made to the shareholders at the meeting of last year, to present for their sanction a revised set of rules and regulations, the Joint-Stock Companies' Act, passed very soon after, raised so many doubts as to the propriety of their attempting the task, that they have not proceeded in it. There are two vacancies in the committee—one caused by the decease of the late Mr. George Barker, and another by the disqualification of Mr. Francis Mowatt. Mr. James Alston and Mr. John Macdonnell have given notice, that they mean to offer themselves to fill those vacancies. The committee of management, upon a review of their resources, have determined, in addition to the dividend just paid, to declare another of the like amount of 2s. a share, payable the 21st proximo.

## Receipts and Expenditure for the year ending December, 1844.

1844.	RECEIPTS.	1844.	EXPENDITURE.
Jan. 1—Balance in hand.....	£7373 1 5	Jan.—Cost at the mine.....	£3501 2 9
Jan.—Sale of copper ore.....	3609 1 7	Feb.—Ditto ditto.....	3429 4 5
Feb.—Ditto ditto.....	2512 8 11	Mar.—Ditto ditto.....	3473 0 4
Mar.—Ditto ditto.....	2933 6 3	Apr.—Ditto ditto.....	2785 12 9
Apr.—Ditto ditto.....	3360 15 4	May—Ditto ditto.....	3085 3 6
May—Ditto ditto.....	2752 19 11	June—Ditto ditto.....	3484 14 11
June—Ditto ditto.....	2336 0 11	July—Ditto ditto.....	3373 17 4
July—Ditto ditto.....	3169 14 4	Aug.—Ditto ditto.....	3443 6 6
Aug.—Ditto ditto.....	2513 2 2	Sept.—Ditto ditto.....	3215 5 9
Sept.—Ditto ditto.....	2570 14 10	Oct.—Ditto ditto.....	3341 0 3
Oct.—Ditto ditto.....	3479 9 9	Nov.—Ditto ditto.....	3359 1 8
Nov.—Ditto ditto.....	2552 11 6	Dec.—Ditto ditto.....	1457 16 7
Dec.—Ditto ditto.....	3193 18 10	Dues.....	407 0 0
Ditto tin ores.....	8653 17 5	Office expenses.....	367 14 0
Ditto of arsenic.....	306 1 5	Committee of management to March, 1844.....	100 0 0
Ditto old stores.....	248 7 2	Discounts.....	25 8 1
		Law expenses.....	54 2 0
		Dividends.....	2000 0 0
		1844—April 25.....	2000 0 0
		Aug. 15.....	2000 0 0
		1845—Feb. 12.....	2000 0 0
		Balance.....	4150 19 0
Total.....	£51,609 18 0	Total.....	£51,609 18 0

The SECRETARY having submitted the above statement, concluded by reading the annexed letter from Mr. Lyle:—

March 15.—I beg to hand you a brief report of these mines for your meeting of Wednesday, and am glad to state that our prospects are very cheering, and that we may look forward for many years to a lasting and profitable mine.

The Druid lode, during the past year, have been, and still are, very productive. Several of the ends are turning out exceedingly well, and we may calculate that in the backs from twenty to twenty-five pitches may be set, at tributes varying from 1s. to 6s. 8d. in the 11. There is good ground standing from the adit to the forty-six fathom level, which will produce, at the lowest estimate, 50,000, worth of ore. In the Eastern Druid, and in the last of the present year, there is a considerable quantity of tin in the level, which has been opened on about thirty fathoms in length, producing both copper and tin ores, which may be taken away at tributes varying from 3s. to 10s. in the 11. From this level to the sixty-six fathom level, on the north lode, there is also a considerable extent of productive ground, and the ends are looking well. On the High Burrow lode, at the 105 fathom level, 170 fathoms of ground have been opened, the whole of which is valuable, and at present produces most of the tin. There is a course of tin in the ninety-two fathom level worth 300, per fathom; this lode has also been cut at the 125 fathom level, seventy fathoms further than the end at the 105 fathom level, which produces both tin and copper ore; this lode promises to make great returns. The ground west of High Burrow shaft, below the eighty fathom level, towards Tincroft Mine, has been under water during the whole of the past year, but it is daily expected to be drained by a communication with the 105 fathom level, which will tend much to increase the returns. Hichens's lode has been wrought as deep as the ninety-two fathom level; from thence to the forty-eight fathom level it has produced great quantities of ore, and is still looking well. Two cross-cuts are now driving near to this lode—one at the eighty, the other at the 105 fathom level, on a cross-course fifty fathoms east of Barker's shaft, a distance of about 100 fathoms from the present workings at the ninety-two fathom level. These cross-cuts are also expected to intersect other lodes in the same direction, which have been very productive in the more westerly parts of the mine. The contra lode has been opened upon, about fifty fathoms in length, at the thirty-six fathom level, in the back of which a great discovery has recently been made by tributors; two men having got in the last 48, in the 11, 100, and the new pitch is now working at 1s. 6d. in the 11. The other lodes, though not rich, are all producing some ore; and, as there are favourable channels of ground both east and west of the present workings, you may expect them to increase in value as the levels are extended. South of the Druid lode we have some other lodes, whose indications are equally encouraging, and are likely to be as productive as those already explored. We shall commence driving two levels towards them without delay. In looking over our returns for the last ten years, I find the profits amount to..... £130,000 Add to this, for interest on the capital..... 20,000 Also, for ore discovered, now in the backs to be taken away, at the lowest estimate, and at the present low price of tin and copper, say £190,000 Deduct tribute, at 7s. 6d. (the average of the mine)..... 45,000—75,000

Total..... £225,000 so that, in fact, we may estimate that we have profited in ten years 225,000; and I believe, that if a fair price can be obtained for the ore produced, we shall be able to do it, if not exceed, the average of this profit, taking one year with another. JOSEPH LYLE.

MR. SAUNDERS inquired whether there was not a mistake in the balance-sheet respecting the 6000l., alleged to have been paid in dividends, during the year 1844?—If he remembered right it should be 4000l., as the remaining sum had been allotted in the previous year.—The SECRETARY observed, that 6000l. was the sum actually paid in dividends during the course of the year 1844, but it had been customary, in the accounts previously laid before the shareholders, to charge all dividends paid up to the date of the annual meeting, though the other items of account were not brought down later than the end of the preceding December. So, in the accounts presented last year, the fortieth dividend, payable 31st January, 1844, was charged in those accounts; and, to proceed in the same course, the forty-third dividend, payable 12th February, 1845, was charged in the present yearly account, though, strictly speaking, it belonged to those which would be submitted in the year 1846—still, the account upon the table was substantially correct, and the balance of 4150l. 19s. 6d. there stated remained at the credit of the mine, not only after charging against the concern the 6000l. dividends paid in 1844, but 2000l. more paid in 1845.

MR. SAUNDERS had alluded to the discrepancy, not for the purpose of opposition, but because he had considered the report could not be received, while there was an error of 2000l. on the face of it. There were also one or two other omissions in the document, which rendered it not so complete and satisfactory as it ought. He perceived that the directors recommended the election of Mr. Macdonnell as one of their body, he would inquire, was it intended that he should perform the duties both of director and secretary?—If so, such a course would be most unprecedented, and on a subject of such importance, some mention ought to have been made of it in the report.—The SECRETARY replied, that it was intended he should act as managing director, in which case the duties of secretary would merge into those of his new office: the clerk discharging any additional business which might supervene.

MR. SAUNDERS wished to be informed why the change of offices, and other minor circumstances connected with the management of the company, had been overlooked in the report? he feared it had been drawn up but hastily and imperfectly.—MR. VIGORS observed, that the house in which they were then met had been taken for the Western Cornwall Railway Company, and as many of those engaged in one were also connected with the other, an arrangement had been entered into, that the two companies should be accommodated in it together: those arrangements, however, being as yet incomplete, it had been considered advisable to say nothing about it in the present report.

MR. SAUNDERS still thought that the shareholders had been too much left in the dark; they had heard that some directors were to be elected in the room of one who was deceased, and another disqualified, but not a word was said of the outgoing directors, who, by the rules of the company, were required to retire, nor of the parties recommended by the board to be elected.

MR. FORSTER believed that the fault lay in there being no rules whereby the company might be governed: such regulations ought originally to have been framed, but in trying to avoid the necessity of a deed, in accordance with the Joint-Stock Company's Act, they had rendered themselves wholly unrestricted by any bye-laws whatever. He would wish to be informed, with respect to the very small balance accruing to the company on the last year, whether it arose from the products of the mine being less, or the expenses more than usual?—MR. VIGORS explained, that considerable expense had been occasioned the company, by some transactions arising out of a dispute between them and the Tincroft Company. One portion of the Carn Brea Mine, adjoining the Tincroft, was unwatered, and the latter, being similarly situated, a difference arose as to which party should bear the expense of draining. The matter was left to the arbitration of Captains Joseph Vivian and Trevelthick: they decided that neither party should pay the other; but, notwithstanding that the Tincroft had agreed to abide by the adjudication of the arbitrators, they erected works and demanded 15l. a month for draining the Carn Brea Mine. This the latter refused, and drove a level to drain their mine by their own engine, which, of course, put them to a considerable expense; but this temporary disadvantage would be more than compensated by an increase in the product of the tin. This had been the chief cause of the small profit presented by the balance-sheet; the expenditure, in other respects, having been rather diminished. A slight addition had been occasioned by a better supervision

being procured, which had, however, created a great benefit to the company, in the item of stores, &c.

The SECRETARY observed, that in the two years preceding 1844 the expenses of the company were 67,000l., while, in this year, the cost had not exceeded 39,500l.—MR. SAUNDERS would again press the subject of Mr. MACDONNELL, being proposed for election as director; now though the rules of the company said nothing about directors, it seemed rather anomalous for the office of director and secretary to be united. He should wish something explicit to be stated respecting this appointment, as in the event of the duties not being amalgamated, it would be necessary to elect another gentleman as secretary.—MR. VIGORS thought it better, in the absence of any specific rule, to leave the matter in the hands of the managing committee, who would see that the interests of the shareholders were properly consulted and protected.

The SOLICITOR (Mr. Squance) would take the opportunity of explaining the position of the company; they must either be a body of shareholders with undefined laws, with unintelligible rules, confiding implicitly in the wisdom and integrity of the directors, or else they must submit to come in under the terms of a deed of co-partnership, in which case they would be under the supervision of the Board of Trade. Such was the position they were placed in by the late Joint-Stock Company's Act. They must either remain on the cost-book system, or else have a Deed of Settlement, and be subject to the surveillance of the Government—between the two they must make their choice.

The CHAIRMAN observed that they had virtually, though not nominally, regulations to direct them, and the board would always feel themselves bound by them, so far as they were conducive to the prosperity of the concern.

MR. VIGORS, in answer to Mr. Foster assured the meeting that the prospects of the mine were, on the whole, more promising this, than the last year; he had taken the opinion of several unprejudiced parties, competent to pronounce upon their position, and they were unanimous in confirming his own sanguine anticipations.—The report was then received, and ordered to be printed with the accounts and Mr. Lyle's letter; and Messrs. Macdonnell and Alston being elected directors, the meeting separated.

## SOUTH-EASTERN RAILWAY.

The half-yearly meeting of this company was held at the London-bridge Station, on Tuesday, the 18th inst.—SIR JOHN KIRKLAND took the chair.

MR. GILBERTSON asked the cause of the delay in delivering the reports to the proprietors.—The CHAIRMAN said it arose through the chief accountant being subpoenaed to Maidstone with the books of the company, which had hindered their getting the accounts ready before the previous night.

A PROPRIETOR wished to know if any shareholder could inspect the register and the number of shares?—The CHAIRMAN regretted the absence of the solicitor at the House of Commons, who could best answer this question. He had, however, no hesitation in saying, that such information would be given to any one on his individual application.

The SECRETARY then read the advertisement, and the report of the directors, which stated the gross revenue for the half-year ending 31st January to be 139,042l. 11s. 2d., while the expenditure amounted to 69,288l. 0s. 2d. Of these expenses, so large a proportion as 28,949l. 15s. 2d. was disbursed by the joint locomotive committee, composed of equal numbers of Brighton, Croydon, and South-Eastern directors; the whole disbursements of that committee amounted to 47,879l. 8s. 7d., of which the above proportion was charged to the South-Eastern Company, 14,895l. 19s. 11d. to the Brighton Company, and 4033l. 11s. 6d. to the Croydon Company. A mixed authority and divided control of this nature is obviously undesirable, more especially when exercised over so important a branch as the locomotive establishment; the directors have, therefore, very properly taken steps for bringing this department under the absolute control and direct responsibility of its own board and officers by the end of this year. The new arrangements for the carriage of goods on the railway came into operation on the 1st February, and are proceeding in a satisfactory manner. Satisfactory arrangements have been made with the Commissioners of Customs for the construction of a new Custom-house at Folkestone, which is required for the increased traffic there. The Maidstone branch was opened on the 25th September: it being a single line of rails, the directors, to insure its convenient working, have thought it right to lay down the electric telegraph from Tunbridge to Maidstone. The Tunbridge Wells branch (double line of rails) is expected to open in September. The Canterbury branch (also double line of railway) is expected to open in December, and the extension of the Canterbury branch, at present with a single line of rails to Ramsgate and Margate, will, it is hoped, be completed and opened for traffic early in next year. The lease of the Greenwich Railway, as approved by the resolution of the last half-yearly meeting, has been executed, and awaits only the sanction of the Legislature; the lease dates from the 1st of January last. The South-Eastern Company have purchased, and are now in possession of, the whole of the Greenwich stock and land. The comparative receipts of the Greenwich branch in January, February, and part of March, were, in 1844, 7227l. 4s. 1d.; in 1845, 9151l. 6s. 3d.—excess, 1924l. 2s. 2d. The Whitstable Railway is now completely in the hands of the South-Eastern Company. The directors regret that they cannot report an adjustment of the account with the Brighton Company, regarding the cost of the six miles of railway between Reigate and Croydon, which, according to Act of Parliament, were to be constructed and delivered over to the South-Eastern Company, to become its absolute property, on payment of the actual cost, to be proved by vouchers: according to the provisions of the statute, however, an arbitrator has been appointed in due form on each side; the amount claimed in the original account rendered by the Brighton Company was 326,137l. 2s. 3d., which sum was afterwards invested in 3 per Cent. Consols, and now amounts, with the accumulated dividends, to 352,967l. 6s. 3d. Consols. The directors are not in treaty with any company, either for amalgamation or lease. The accounts show a balance 70,444l. 17s. 7d.—the directors recommend (income tax free) a dividend of 15s. 4d. each on paid up shares, and 1s. 11d. on No. 1 shares—which, on the 4th paid previous to 31st Jan., 1845, are entitled to a proportionate dividend. The total amount of this dividend will be 45,616l. 13s. 4d.—leaving a reserve fund of 24,828l. 4s. 3d. The directors going out by rotation, but eligible for re-election, are Messrs. Feilden, M.P., H. Rich, and W. H. Thomas. The directors also considered it a pleasing duty to repeat their assurance of confidence in the soundness of the scheme which they are promoting, and in the well founded claim of the South-Eastern Company to the favourable consideration of the Legislature.

The CHAIRMAN moved the adoption of the report.—A PROPRIETOR seconded it.—The CHAIRMAN alluded to the great advantage of amalgamating with the Greenwich line, which he hoped would prove the first link of the North Kent line, which line he had no doubt would meet the views of the Legislature. He spoke of the new steam company, the vessels of which were to run between England and the continent; the proprietors would have an opportunity in a very short time of signifying their wishes to take shares, or otherwise, in this company. He had no doubt the result of this would be the producing of an extremely great traffic to this line of railway.—The report, after a few words, was then adopted, and the dividend of 15s. 4d. was agreed to unanimously.

AFTER a few observations, a vote of thanks to the chairman was proposed by MR. M'GREGOR, seconded by MR. AINSWORTH, M.P., and passed unanimously, when the meeting separated.

ONE GUINEA WELLINGTON BOOTS, MADE TO MEASURE, by G. GARRETT, BOOTMAKER, by special appointment, to the KING OF THE BELGIANS.—A STOCK of the most FASHIONABLE and HIGHLY-FINISHED BOOTS, of all kinds, kept ready made, to suit the convenience of Noblemen, Officers of the United Service, and Gentlemen, who prefer trying on boots previous to purchasing, or giving an order.—G. GARRETT, ARMY BOOTMAKER, 130, JERMYN-STREET, and 4, LEICESTER-SQUARE.

Just published, the Fourteenth Edition, price 2s. 6d.; free by post, 3s. 6d. THE SILENT FRIEND: a medical work, on Human Frailty, Nervous Debility, constitutional weakness, excessive indulgence, &c.; with observations on Marriage, &c. By R. and L. PERRY and Co., surgeons, London. Published by the authors, and sold at their residence, also by Strange, 21, Paternoster-row; Hanney and Co., 63, Oxford-street; Noble, 109, Chancery-lane; Gordon, 146, Leadenhall-street; Purkiss, Compton-street, Soho, London.

THE CORDIAL BALM OF SYRIACUM is a stimulant and renovator in all spasmodic complaints. Nervous debility, indigestion, asthma, and consumption, are gradually and imperceptibly removed by its use, and the whole system restored to a healthy state of organisation. Sold in bottles, price 11s. and 38s.

PERRY'S PURIFYING SPECIFIC PILLS have long been used as the most certain remedy for scrofulous complaints of every description, eruptions of the skin, pimples on the face, and other disagreeable affections, the result of an impure state of the blood. These pills are perfectly free from mercury, calomel, and other deleterious drugs, and may be taken with safety without interference with or loss of time from business, and can be relied upon in every instance. Sold in boxes, at 2s. 9d., 4s. 6d., and 11s. each, by all medicine vendors.

Messrs. Perry and Co. may be consulted at their residence, 19, Berners-street, Oxford-street, daily, from eleven till two and five till eight. On Sundays from ten till twelve.

LAMBERT ON DEBILITY, NERVOUSNESS, AND ALL DISORDERS ARISING FROM EXCESS, &c.

"He who in pleasure's downy arms, A hero lives, and justly can Ne'er lose his health, or youthful charms." Exclaim, "In me behold a man!" Just published, the Seventh Edition, in a sealed envelope, price 2s. 6d.; or free by post to any address, for 3s. 6d.

SELF-PRESERVATION: A Popular Essay on those concealed disorders of the generative system, originating in solitary habits, youthful excess, or infection, and terminating in local and constitutional weakness, nervous debility, melancholy, incapacity, gonorrhoea, syphilis, indigestion, insanity, consumption, &c., with plain directions for their treatment and cure. Illustrated with cases. By SAMUEL LAURENT, consulting surgeon, 9, Bedford-street, Bedford-square, London; Honorary Member of the London Hospital Medical Society, Licentiate of Apothecaries Hall, London, &c.

"The various positions of liver, husband, and parent, are the inherent privileges of mankind, and, but for the accidents of mortality, would be awarded equally to all. To such, among others, this essay addresses itself; and, by its perusal, many questions may be satisfactorily adjusted that admit of no appeal, even to the most confidential friend." Stafford Gazette.

Sold wholesale by S. Gilbert, 51 and 53, Paternoster-row; retail by Starke, 23, Tichborne-street, Quadrant; Hanney and Co., 63, Oxford-street; and Gordon, 146, Leadenhall-street. At home daily, from nine to three, and from five till eight; and immediate replies sent to all letters, if accompanied by the post-office fee of 2s. 6d. for advice, &c.

9, Bedford-street, Bedford-square, London.







## STEAM TO INDIA VIA EGYPT, MALTA, ITALY, ALEXANDRIA, AND THE PENINSULAR PORTS.

**PASSAGE TO BOMBAY, MADRAS, AND CALCUTTA.**  
The Peninsular and Oriental Steam Navigation Company's steam-ships  
**START FROM SOUTHAMPTON THE FIRST OF EVERY MONTH.**  
arriving at Alexandria about the 15th. The Hon. East India Company's steamers leave Suez for Bombay about the 23rd of the month, and for Madras and Calcutta the Peninsular and Oriental Steam Navigation Company's steamers, *Hindustan* and *Beatrice*, or Government steamer. The Peninsular and Oriental Steam Navigation Company have now a steam-tug on the Mahmoudieh Canal, and other great improvements have lately been introduced into the transit through Egypt.

**STEAM TO MALTA, ITALY, &c.**  
A steamer from Southampton leaves the first of every month for Malta, whence are steamers to Naples, Genoa, Civita Vecchia, three times a month.

**STEAM TO OPORTO, VIGO, LISBON, CADIZ, AND GIBRALTAR.**  
A steamer leaves Southampton every Thursday at 3 p.m. for the above places.  
Apply at the Peninsular and Oriental Steam Navigation Company's offices, 51, St. Mary Axe, London, where only passages can be secured throughout.

## DISS, BECCLES, AND YARMOUTH RAILWAY.

(Registered Provisionally, pursuant to T and S Victoria, c. 110.)  
**DIRECTORS.**  
Chairman—THOMAS OSBORNE SPRINGFIELD, Esq., Norwich and London.  
William Back, Esq., Stratford St. Mary, Suffolk.  
Calverley Richard Bewicke, Esq., Barham House, Beccles.  
William Cary, Esq., London.  
William J. Crowfoot, Esq., M.D., Beccles.  
Smythen Jervis, Esq., London.  
John M'Kee, Esq., London.  
Richard Mann, Esq., Bungay.  
Hesekiah Martin, Esq., Yarmouth.  
William Richardson, Esq., London.  
William Ayscough Wilkinson, Esq., London.

The directors beg to inform the shareholders in this company, that they have concluded an arrangement with the Eastern Union and Eastern Union Extension Railway Companies to grant a lease to those companies upon a guaranteed rental of 4 per cent. upon the capital, and an equal division of the surplus profits.

The traffic tables, which have been carefully taken by Mr. Pare, show a net profit of 8 per cent., exclusive of the additional traffic which may be reasonably expected, in accordance with railway experience.  
The directors congratulate the shareholders on this arrangement, which secures the subscribed capital of the Eastern Union and Eastern Union Extension Companies (exceeding one million) as a guarantee for the payment of the fixed rental of 4 per cent. and of the additional profit.

The bill is now before Parliament, and will be proceeded with without delay.  
(Signed) SWYFEN JERVIS, Chairman, pro tem.  
Railway Offices, Pancras-lane, March 19, 1845.

## BRISTOL AND EXETER RAILWAY.—THIRD SHARES.

—NOTICE.—Scrip Certificates of THIRD SHARES in this company may be obtained on application, personally or by letter, at this office, after the 25th of March, in exchange for BANK RECEIPTS for DEPOSITS, with the names in full, and the addresses of the parties entitled to them. By order of the directors,  
Office, Broad-street, Bristol, March 22, 1845. J. B. BADHAM, Secretary.

## PATENT IMPROVEMENTS IN CHRONOMETERS.

**WATCHES, AND CLOCKS.**—E. J. DENT, 82, Strand, and 33, Cockspur-street, watch and clock maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6 gs. each; in gold cases, from £8 to £10 extra. Gold horizontal watches, with gold dials, from 8 gs. to 12 gs. each.  
DENT'S PATENT DIPLEDOSCOPE, or meridian instrument, is now ready for delivery. Pamphlets containing a description and directions for its use is, each, but to customers gratis.

### NOTICES TO CORRESPONDENTS.

J. P.—We hope next week to furnish our correspondent with the information he requires respecting the Nouvelle Montagne Mines; we have been disappointed in our French communications this week, but do not anticipate any longer delay.

We are unable to give any satisfactory explanation to J. H., who complains not only of the low, but the equivocal, price of the Rhymney Iron shares—ranging sometimes between such figures as to leave a questionable margin to work on; our correspondent attributes this to a desire on the part of those contemplating larger investment to keep the prices as low as possible, especially as the prosperity of the concern, even more enhanced by the interest given to the iron trade universally, would engender an eagerness to invest, at the same time that it should command a far higher quotation.

T. H. O. (South Town, Yarmouth).—Some particulars will be published, probably, in next Journal.

We are preparing a history of all the different methods of submerged propelling, and, in order to render the paper as perfect as possible, we should feel obliged by the communications of correspondents on the subject.

We had already received a copy of the report forwarded by W. W.

"Common" pig lead is used for making sheets, pipe, &c.  
"Refined" ditto "white lead."  
Welsh pig-iron is used for castings, as well as for bars, rails, &c. The present price for No. 1 cold-blast is about 6s. 10s. in Wales.  
Ditto "refined metal" is a superior quality of the above, being, we believe, advanced a stage beyond it for making bars, and is usually 5s. to 10s. per ton more than No. 1 cold-blast.

## THE MINING JOURNAL

Railway and Commercial Gazette.

LONDON, MARCH 22, 1845.

In our last week's Journal we adverted to the successful working of a mine in Cornwall, the lode of which was represented to us as being worth 500*l.* a fathom, and which we adduced, rather as an exception to the general rule, than with the object of illustrating the profits derivable from Cornish mines at the present time—when they are suffering so severely from the effects of the depreciation in the standard. A highly valued correspondent has, however, directed our attention to the subject, under a mistaken notion, that the remarks made were calculated to mislead, and, perchance, to convey a false impression as to the serious effects which the introduction of foreign ores has produced on our home mines, inasmuch, that with returns so large, there was but little room for complaint. Our correspondent states that the result of the sales of the ores referred to, incontestably proves the excess which before existed, from the influx of foreign ores; otherwise, he observes, "it would not have been possible that these ores should have sold at about 11 under the standard of the previous week." We are told, indeed, by the smelters, that there is already more copper manufactured than the market will take, the excess arising from the large quantities of ore brought to this country from Cuba and Chili; and hence, anomalous as it may appear, with the competition which the home miner has to sustain, the very productiveness of our home mines, while it may benefit one set of adventurers, inflicts a serious evil on the many, as tending to increase the supply, and thus further depreciate the standard. The smelter very fairly contends that, bound as he is at the ticketings, to take all ores which may be offered, he must needs look to the state of the markets, the supply and the demand, while, should the former be greater than the latter, he can only purchase the surplus at a price which will yield a larger profit for the risk incurred and the capital embarked than under ordinary circumstances. This might be foreseen, and, indeed, was, we believe, submitted to the Minister, in 1842, when the new tariff was introduced, and to which we must, in a great measure, attribute the present lamentable position of the miner. It was then supposed, or rather advanced on the part of the Government how correctly or otherwise, we unfortunately have evidence too conclusive to admit even of a doubt—that it was impossible to overstock the copper market, as the demand would at all times equal the supply, and remunerative prices would be realized; and the plea, on the part of the Government, being, that every ton of foreign ore imported into this country would give additional employment to the smelter. The comparative number of individuals employed in mines and in the smelting works, however, showed the latter to be insignificant, as not being more than 3 per cent. on the labour employed in mining operations in this country, while it entirely escaped the thought of the Minister, that as employment is found for three men in the smelting of foreign ore, that 100 miners are displaced and thrown out of employment; or, as has been too plainly demonstrated that where employment is found, the rate of labour has deteriorated full 40 per cent. Ministers, however, it would appear, are determined still further to pauperize the country, by admitting tin from Asia, free of all duty, the object of which it is difficult to understand, without it be to advance private interests at the expense of the mining community. We have ever expressed our apprehensions as to the results which these free trade principles, or actions, we should rather say—for we believe the Minister to be devoid of all principle in adopting so heartless a course, as prejudicing and pauperizing the

home miner and mine adventurer—were calculated to produce, and—we hesitate not to express our conviction, that, if the Minister be allowed to carry out his projected measure, of admitting tin free of all duty, removing the very trifling and comparatively insignificant protection which the tinners retained under the new tariff, the day is not far distant when thousands of miners must be thrown out of employment and become beggars, their only resource being the Union, where the bright prospect presents itself of their being separated from their wives and children—such must be the effect of the measures of our paternal Government, whose solicitude, we believe, is rather directed to place than to the happiness and prosperity of those who contribute to the taxes which they impose. It is true, that they take the right course to prevent the miner or mine adventurer from having cause of complaint as regards the Income Tax, for every measure is resorted to calculated to deprive him of the means of subsistence, or obtaining a return for the capital employed. How short-sighted must Ministers be: were they to reflect that, with the employment of 10,000 miners—and we will, for argument sake, take those employed in the tin mines at that number, that there is an expenditure, directly or indirectly, sufficient to maintain five times their numbers; while, on the other hand, the whole of the tin ores raised in Cornwall do not employ 100 persons in the smelting process. Thus, it will be seen, should the whole of the tin smelted in this country be of foreign produce, it would, at most, give employment to 100 individuals, while it would, at the same time, throw 10,000 out of employ. What then can be the motive which influences the minister?

We would recommend him to pause, and seriously reflect on the direful consequences which may attend the throwing out of employment so large a body of men.—Let him consult not the smelter, the shipowner, or those few whose interests are blended with his proposed measures, but let him take the practical miner or mine adventurer; let him even ask the smelter himself what will be the consequences. Mr. MICHAEL WILLIAMS, we feel assured, if applied to, would have the honesty and boldness to tell the Minister to beware, and not to act rashly. The removal of the duty on tin is but the precursor to an alteration in the duties on foreign copper ores. Already have the foreign miners, the Liverpool clique, and the shipping interest, with the majority of the body of smelters, memorialized Government, and they are cautiously watching their opportunity to press their claims! Let, not, then the home miner be supine or inactive; let him be ever watchful, and, moreover, let not the Members for the mining districts be found sleeping at their posts. How is it, we would ask, that Sir C. LEMON, Mr. PENDARVES, Sir R. VYVYAN, and Mr. RASLEIGH, with the other Members, including the "Central" Member, Mr. EDMUND TURNER, are silent? What interests do they represent?—perhaps the latter gentleman would tell us "his own" and free trade; however, they may depend upon it, that the day of reckoning will come, and then they will find it somewhat difficult to give an account of their stewardship.

The absurdity of the argument put forward by the Minister, that there is no reason why, with a free trade in cotton, the same principle should not also be applied to tin, is too apparent to render many words necessary in dwelling on the subject. If we will assume England had for thousands of years supplied the world with raw cotton, as Cornwall has heretofore with tin, is it to be imagined that any Minister, however powerful, would attempt to bring raw cotton to this country duty free. If he were so foolhardy, we hesitate not to say he would perish in the attempt; and is it not then monstrous that Sir ROBERT PEEL, the free trade Minister, should apply the principle to tin as well as cotton?

It is not, however, too late for the Minister to pause at the threshold,—he cannot retrace his steps when the course is once taken; and we counsel him, as he values the quietude of a district, which can boast of loyalty and industry, not to trifle with the existence of those who are dependent alone on their exertions for their being.

After four days' patient investigation in the case of the boiler explosion at Blackwall, referred to in our last, the jury have given a verdict of manslaughter against Mr. GEORGE LOW. The inquiry has throughout excited the greatest interest, and the jury displayed, not only a strong determination to sift the matter thoroughly, but, by their verdict, have evinced that bold and impartial decision, which the evidence demanded. Indeed, the evidence of all the scientific men who were examined, tended to show that this explosion must have arisen from the high state of elasticity of the steam in the boiler, and that any supposition as to its having arisen from the explosion of gas, was, as we had previously stated, utterly untenable; it was also adduced, that the pressure must have exceeded 100 pounds in every square inch of surface; the fact of the upper row of tubes being brass was quite sufficient at one view to rebut any evidence of inefficiency of the supply of water—brass exhibiting immediately an unmistakable evidence when once overheated. This was farther borne out by the absence of oxide of iron, which must have been deposited in the tubes below the brass one had oxygen been absorbed; the points, therefore, that this accident must resolve itself into are the following: 1st. Inefficiency of strength of the boiler for its purpose. 2d. The sticking of the valve by some cause. 3rdly. If being incapable of carrying off the steam generated from malformation of parts; or, lastly, that the valve had been tampered with by some person.

With regard to the first supposition, inefficiency of strength for its purpose, we have the following facts; the boiler was originally intended for supplying steam for two 25-horse power condensing engines, at a pressure of 15, or at most, 20 lbs. to the square inch, at which pressure it was perfectly safe; but when put to a high pressure use, which it had been in the present case, it then became too weak for its purpose, which weakness was still farther increased, by the absence of stays across the boiler, to compensate for the absence of that portion of its surface cut out below the steam chest, which was 4 ft. 6 in. diameter, and this too, from out of the top of a cylindrical boiler, the diameter of which was only 6 ft. 6 in. The plates of the boiler were  $\frac{3}{4}$  thick, that of the steam chest 5-16ths; the boiler was safe for a low pressure, but highly dangerous when unstayed for the high pressure it was intended to subject it; this was borne out by the evidence of Mr. MERRITON, who had tested the boiler when first made by water pressure to only 50 lbs. on the square inch.

That the second point, the sticking of the valve, was not the fact, the tendency of Mr. Low's own witnesses go far to negative, some having seen the steam blowing off—they state even up to the time of the explosion. We may here, however, mention the great discrepancies of many parts of the witnesses' evidence; that the witness READ saw the lever—saw steam also blowing from the valve, but only saw one weight, when it was not disowned that two were employed: "he did not see any wood employed," although he afterwards, in conversation with a person, denied that that piece of wood was a piece of scaffold pole, but that it was a piece of "quartering;" he gave the diameter of the valve pattern as 4 $\frac{1}{2}$  inches, that of the valve chest as between five and six inches, whilst evidence was produced that the diameter of the valve, after being cast, turned, and finished, was 4 inches and 9-16ths, and that the diameter of the valve casing was 5 inches and 1-32d of an inch. The witness named CHETLE stated, first, that the man on top of the boiler could not get at the valve to hold it down; but on the last examination, by Mr. FLOWER, thought it probable, that this man getting into the boiler by a ladder, though he had previously stated that he saw nothing resting against the boiler, might have caused the accident, by the ladder catching the valve. With regard to the malformation of the valve, and its being incapable of

carrying off the steam generated, we have the evidence that the area of the circle, between the outer diameter of the valve and the inner diameter of the valve chest, contained only about 3 $\frac{1}{2}$  square inches, although the area of the valve was about 16 square inches, and that the valve must have risen 13-16ths before the area of that passage from the valve could have increased, it only then reaching the bottom of the waste steam-pipe, some vessels at present on the Thames, having a pair of 16-horse engines or a combined nominal horse power of 32, have two safety valves of 4 $\frac{1}{2}$  inches diameter, being equal to one square inch of valve to each nominal horse power. In the present instance, we have a boiler constructed to supply two 25 nominal horse power engines with one valve 4 9-16ths in diameter, containing about 16 square inches, which area was, through the smallness of the valve chest, again reduced to less than 4 square inches, whilst, if the proportions used in the foregoing case had been adhered to, we should have had an escape of 50 square inches, instead of less than 4. These are facts worthy of being examined by our scientific men: it was not stated what the size of the valves were which were appended to this boiler when employed in *Waterman*, No. 11. With regard to the last hypothesis, that the valve had been tampered with, there would appear to be almost certain proof: some of the witnesses admitting that they did not see any piece of wood, although, they allowed, it might possibly have been there without seeing it; and, moreover, it is not positively denied by Mr. Low himself. The decision of the jury has, however, been given, and the conviction on their minds, as expressed by their verdict, will, we think, be admitted by all, who read the evidence with care, to be strictly consonant with truth and justice; it, however, still remains for the decision of a jury of a superior court, who, it is to be hoped, will give to the subject all that attention which its importance demands. If any thing is defective in principle, it ought to be clearly ascertained, so as to avoid a recurrence of accidents of so fearful a nature. The purposes of steam are rapidly increasing, and it is to be hoped, that engineers and scientific persons to whom it is of such vital importance, will not only lend their aid to elucidate the cause, but will, to the utmost of their ability, by their inquiries and minute investigation, enable the jury to arrive at correct conclusions as to the cause of the explosion. It is hardly necessary to say, that if accident after accident are allowed to be passed over without any adequate inquiry, the public will naturally imagine that the error exists in the principle, whilst, by investigation, it may be proved to have arisen through injudicious management in carrying out that principle. That we have not devoted too much space, or unduly over-rated the importance of the case, will be evidenced and readily admitted, while we may observe, *en passant*, that the value of steam machinery exported during the last twelve months has amounted to nearly 800,000*l.* That the existing lines of railway at present in Great Britain amount to nearly 2000 miles (4984) paying to the Government, in the shape of taxes, upwards of 500,000*l.* per annum—not to advert to the rapid progress making, not only in England, but on the Continent, in the application of steam to the several appliances connected with railway propulsion—thus rendering it highly important that an investigation into accidents of this nature should be most perfect, and that no pains be spared to elicit the facts.

It was our intention to have given a summary of the proceedings before the coroner, with a cut, illustrative of the cause to which the accident is attributed; but as such would occupy more space than we can devote on the present occasion, we defer, until next week, further dwelling on so painful a subject, merely recording the verdict of the jury, as delivered at the close of the inquest, which was to the following effect:—"Manslaughter against Low," who, it will be remembered, was the engineer who had the superintendence and control of the engine, and by whose direction it would appear the action of the valve was interrupted. Thus, so far in the fulfilment of their duty, leaving it to another court to determine to what extent he is culpable, and what, if any, punishment, shall be inflicted. We consider the jury have only done their duty, and have, indeed, adopted the only course which it appears to us that presented itself to an unbiassed mind; but it is with regret we find appended to the special verdict, the opinions of the jury as to the state of the engines and machinery in general on the premises of Messrs. Samuda, which they pronounce "very inefficient," and, moreover, of a "very defective character." It is sadly to be lamented that there should be cause for an expression of this kind, for, we should have supposed, after the melancholy loss of life of one of the firm by the explosion at Blackwall, some months since, more than ordinary care and caution would have been manifested. The inquest on the bodies of the other sufferers yet remains to be held, when, we presume, similar verdicts will be given, as the evidence must necessarily be the same.

### RAILWAYS IN IRELAND.

CONTRAST BETWEEN PROJECTED RAILWAYS FROM GALWAY TO DUBLIN, BY ATHLONE AND PORTARLINGTON, AND BY PORTUMNA AND BORRIS-IN-OSSEY.

[FROM A CORRESPONDENT.]

1. As regards directness of transit to the metropolis.—The line by Portumna and Borris-in-Ossory, will be, at all events, not less direct than the line with which it is contrasted.
2. As regards expense of construction and maintenance.—It will be much less expensive, inasmuch as the extent of exclusive railway which it will require to be constructed and maintained will be but sixty-six miles, instead of about eighty-nine miles—the saving of the difference between which may be assumed to be equivalent to the saving of a perpetual annual expenditure of 18,000*l.* (the expense of construction alone, irrespective of the expense of maintenance, being equivalent to a perpetual annual expenditure of 9000*l.*), which sum must be paid out of the annual profits of the company, before any dividend can be declared.
3. As regards probable traffic and revenue, and the interest of the shareholders.—In addition to the foregoing observation, it is submitted, that a line which is not liable to the opposition of any canal, and which tends to connect Galway with the south of Ireland, the south of England, and the Continent, as well as with the east of Ireland and the north of England, must produce a larger revenue than a line which tends to connect Galway with the east of Ireland and the north of England only, and which must suffer materially from the opposition of canals—a mode of conveyance which, though it may partially, can never be wholly superseded, and which has been found, in many instances, a powerful and persevering competitor with the best imagined railway enterprises, even as to passenger traffic.
4. As regards interference with the vested rights of others.—It is obvious, that a line, the nearest point of which is many miles distant from either of the canals, must interfere with the rights of those interested in such canals, less than a line which repeatedly crosses the course of the Grand Canal, expends three-fourths of its length in traversing a district bounded on the north by the Royal Canal, and on the south by the Grand Canal, and may almost be described as parallel to, and equidistant from, each—while it is notorious, that, throughout their entire course, these canals are even now in injurious proximity to one another.
5. As regards national interests generally, and those of the county and town of Galway in particular.—The district through which the Portumna and Borris-in-Ossory line would pass, while it is most populous, and possessed of considerable resources, is now ill supplied with any means of communication with the surrounding districts, or with the metropolis—while the district to be traversed by the other line is already over-supplied with the means of cheap and expeditious transit by water; and it is also to be borne in mind, that, as there is nothing to prevent the county and town of Galway from very soon equalling Lancashire and Liverpool, the town of Galway, as the extreme western port of Europe, will, probably, at once spring into immense importance in a commercial point of view; and, therefore, whether the rapid transmission of mails, or the convenience of merchants, of manufacturers, or of mere travellers, be considered, the national interests imperatively demand for the town and port of Galway an early, direct, and economical railway communication with Cork and Waterford, as well as with Dublin.



## Original Correspondence.

## REAL DEL MONTE MINES.

Sir,—Being compelled, most reluctantly, to defend my character for consistency against the misrepresentations of Mr. Tyrrell, contained in a letter published in your last Number, I trust you will extend to me the same indulgence, with which he was favoured, by giving publicity to mine.

In common with other registered shareholders in the Real del Monte and Bolanos Mining Companies, I received the circular from Mr. Tyrrell (a copy of which appeared in your paper of the 8th inst.), containing proposals for a variety of alterations in the management of both those companies, which he intended to submit to the shareholders at the next general meeting, which was to be held on the 10th of the present month, and which did take place accordingly. To all his proposals I most strongly objected in the answer he requested might be returned. On the day of the meeting Mr. Tyrrell read his proposals; previous to which he told us that, out of 167 replies he had received, mine was the only one that differed from him in the expediency of making the proposed alterations. In my letter to Mr. Tyrrell, after stating that I had been a shareholder in both the above-mentioned companies from the time they commenced operations, that I was deeply interested in their success, and had attended almost every meeting that had been held,—I went on to say, "of this I am thoroughly convinced, that had it not been for the superior scientific attainments of our excellent manager, Mr. Taylor, and his intimate acquaintance with the mining population of this country, by which he was enabled to select and send out those who were the best qualified for the various duties required, both in the underground and surface operations, and if it had not been for the zealous, unwearied, and almost daily, attendance of some of our directors at our office, the Regla Mines must long ago have been abandoned. Your proposal, therefore, to dismiss the manager, whose original salary was 1500*l.*, but subsequently reduced, by his voluntary act, to half that amount, and, by a second concession, to his present salary of 300*l.*; to establish the office in the City (which you consider would be an economical arrangement, but which, I am quite certain, would be an additional expense) by which it would be utterly impossible for the directors to pay the same attention to the important business they have to transact that they do at present; to amalgamate the two companies—impracticable, because illegal; by implication to abate our confidence in the directors, and insult them by an endeavour to reduce their salaries, they having, by their own act, consented to give their attendance at the board, for a length of time, without receiving any remuneration—and, when they returned it, instead of 150*l.* for each director in the Bolanos Company, took only half that amount; who reduced the number of directors from twelve to seven, thereby effecting a saving of 500*l.* per annum; besides which, reducing their salaries, in the Real del Monte Company, from 1200*l.* to 100*l.*; to have but one secretary and three clerks, to undertake the onerous office business of both companies,—are proposals, which appear to me so preposterous, that I cannot suppose they will meet with the least encouragement from the body of shareholders; they will have too great a regard for their own interests to unsettle the management (which, from long experience, has been found to work exceedingly well), and thereby greatly to injure, if not to annihilate, one or both the companies, just at a time when our patience and perseverance is about to be rewarded by profitable returns; and all this disturbance to be effected for the avowed purpose of saving the paltry sum of 1576*l.* 18*s.* 5*d.*, out of an annual expenditure of about 200,000*l.*" Mr. Tyrrell read the above letter at the meeting; then again, sentence after sentence, making his comments as he proceeded. He appeared to take umbrage at the word "insult," and as he disavowed any hostile feeling towards the directors, I thought that I ought publicly to retract that word, but that only, which he calls an apology, for the expressions I made use of in my letter. But, by my utter amazement, Mr. Tyrrell goes on to say, in the letter addressed to you, that, after the meeting was over, I told him, in the presence of some others, that I approved of his propositions! Sir, I solemnly declare, on the word of a gentleman, that there is not the slightest foundation for this assertion. I saw Mr. Tyrrell, by chance, at the top of the stairs, opposite the room where we had assembled, in conversation with two or three of the shareholders; until that day he was a perfect stranger to me; but, as an act of courtesy, I addressed a few words to him, which, however, were of such trifling import, that they were soon obliterated from my memory; I believe I said that I was very glad to see he did not hold up his hand against Sir William Freemantle's motion of confidence in our directors; to which, I think, he replied, "I have no objection to the directors." I am quite positive that, whatever else I may have said, had not the remotest tendency to the construction that Mr. Tyrrell has thought proper to put upon it. Is it at all probable, that, after my deliberately written sentiments, so directly opposed to those of Mr. Tyrrell, had been promulgated at the meeting, I should, the moment that meeting was over, be guilty of the base duplicity of disavowing all my previously expressed opinions, and expose myself to one who, of all others, would be likely to take advantage of such an act of indiscretion? Mr. Tyrrell again (in his letter to you) says, "I told you I thought he (the anonymous writer) either sat as a director, or was under their direction: the language is very similar to that used by the chairman at the meeting, and also very similar to that used in Colonel Vachell's reply to my circular. Was Col. Vachell's reply really his own composition?" This appears to be an insinuation, that the letter was written by the chairman of the directors; and not only mine, but the anonymous letter also, "the language being very similar to that used by the chairman at the meeting." This is perfectly true, and may readily be accounted for, without resorting to the supposition that the three statements emanated from the same mind—we were well acquainted with facts, of which Mr. Tyrrell was totally ignorant. Who wrote the anonymous letter I know not; but I can assure Mr. Tyrrell that the letter I sent to him was *bona fide* my own composition; that I am not a person to be made a cat's-paw of by a director; and there is not an individual in that body who has not too high a sense of honour to make any such unworthy proposal; had it been made, I should have spurned it; they are perfectly well able to defend themselves against much more powerful assailants than Mr. Tyrrell—of which, I think, he must be pretty well convinced, from what passed at the meeting; and he must also have felt, that all the facts I had stated, were amply confirmed by the chairman, the manager, and the solicitor. My sole motive, in giving the little support I am able to the directors, is the conviction that I am doing my best for my own interest, being well assured that the affairs of the company cannot be placed in abler hands; and that every kind of economy, consistent with the welfare of these sister companies, has been zealously carried into effect. Undoubtedly, great and frequent disappointments have occurred; but it is just to charge the directors with mismanagement, as some, without ascertaining the cause of failures, are apt to do? Those who are practically engaged in mining concerns know full well, that these speculations are subject to great fluctuations; and their fondest hopes are frequently baffled by untoward events, which human foresight could not counteract. The mines at one time may be very rich, giving an indication of most favourable results, when suddenly there comes a decrease in the value of the ores, by which the mines are worked at a loss instead of a profit. At another time, a large body of water unexpectedly overwhelms those parts of the mines from which the rich ores are extracted, and a considerable time must elapse before the work can be resumed. At another time, a steam-engine gets out of order, water increases, and delay ensues from that cause. Then, again, a quantity of rubbish falls down and covers a part of the mine, from which considerable profits had been calculated upon for immediate benefit. These events have been of frequent occurrence; but the great impediment to profits, hitherto, has been the unsatisfactory manner in which the silver has been extracted from the ores; the loss, compared with the assay, having been from 15 to 40 per cent. It is hoped, that in a very short time, we shall not again have reason to deplore this heavy loss in the precious metal. The barrel process has been found to answer exceedingly well, and machinery for twenty-four barrels (in addition to the eight now at work) is on its way to Mexico. But, what is of much greater consequence, a person sailed to Mexico, by the last packet, who, by a process of his own invention for extracting the silver, for which he took out a patent in Mexico, gave a satisfactory proof of the efficacy in his mode of treating the ores, by realizing a very considerable sum of money; an advantageous bargain has been made with him, by the directors; his skill will shortly be tested at the Regla Mines, and we may confidently anticipate a very favourable result.

Being quite satisfied with the defence I have made against Mr. Tyrrell's attack, I do not mean to enter into any further correspondence on the subject, should any endeavour be made to draw me into it.

T. VACHELL.

\* The chairman of the directors stated the annual expenditure of the Real del Monte Company to be 320,000*l.*; and the two united, upwards of half a million.

## REAL DEL MONTE MINING COMPANY.

Sir,—As the management of the above mines appears to be engaging considerable attention, perhaps I may be excused adding a few words to the correspondence which has already appeared. A gentleman, signing himself "T. Tyrrell," has undertaken the contest against the Board with more impetuosity than wisdom; while on the other hand, another correspondent, under the title of "A Shareholder," appears to be blinded by the fair promises of the directors. The one purpose to remedy all evils by calling for a committee to investigate the affairs of the concerns, and with powers to call for all servants, books, and papers—and even the chairman's confidential book, and other documents, equally and properly inaccessible: the other denounces all interference with the proceedings of the company as dangerous and impracticable. Now, both gentlemen appear to me to carry their ideas to extremes—Mr. Tyrrell by requiring too much, will gain nothing; the Shareholder by desiring nothing, will lose everything. Where can be the benefit of the former threatening to require the chairman's confidential book?—the idea is as absurd as it is visionary; the chairman dare not produce it, and even in the event of the proposition being carried, he might and ought to refuse compliance. Again, Mr. Tyrrell overdoes his business, he will call for the lease of the premises in which the offices are rented—the housekeeper and messenger, and Mr. Taylor with his rent-roll! By such preposterous demands, Mr. Tyrrell defeats his own object: he makes himself deservedly a laughing-stock, and all his suggestions are classed and ridiculed together: had he confined himself to plain reasonable practicable plans, he would have gained the attention—perhaps the concurrence—of others. As it is, I fear his ultimate object, desirable in itself, will be frustrated by the means whereby he would effect it. Again, his proposition respecting Mr. Taylor's duties are absurd—that he should occasionally be consulted as a scientific man, and well paid for his opinion; in other words, now that he has become acquainted with the nature of the company, and made himself thoroughly master of the mines, dismiss him; but still, when you find yourself going to ruin, consult him, make him your cat's-paw, pay him then—discard him the instant he has saved you; then, when again you begin to err, entreat his aid—fee him once more, discharge him. The question is, would Mr. Taylor be fool enough to submit to such indignity, or any other man with capability to perform the duties; many might be found to undertake the office on such terms, but how would they fulfill it? Still, while I blame Mr. Tyrrell's propositions as being chimerical, and more than that, unjust, I do not concur with your other correspondents, that after all the promises, stoutly and repeatedly made, as invariably unfulfilled, the proprietors should rest quietly under their disappointment, as if satisfied at giving their money for no return, and paying their officers for keeping up what is very like a nullity. Surely, if the mines just produce enough, and sometimes not enough, to pay the salaries and nothing more, that is no good ground for keeping the staff to pay themselves. As Mr. Tyrrell very justly remarks, the mines are the support of the manager and the directors; but have the proprietors received one farthing? Either the works should be abandoned as profitless, or some means adopted, in and by the directors, so that all the little returns on the shareholders' outlay may not be expended on the management without the slightest benefit accruing to the proprietors. Let the directors take the matter up. I feel assured they are above all mercenary or unfair dealings, and must be anxious for the prosperity of the concern and the advantage of the shareholders: let them then give the subject a thorough and searching investigation, and see whether by amalgamation of the working establishments, abroad as well as home, of the two companies, Real del Monte and Bolanos, a great saving might not be effected. On this let Mr. Tyrrell take his stand, instead of baying himself about the housekeeper, the messenger, and the rent-roll, and he will have the thanks and support of more than one

Carlton Club, March 18.

[Why does not our correspondent allow us to give his name?—Mr. Tyrrell has a fair claim to require it.]

## BLACKWALL RAILWAY—EXTENSION TO EPPING.

Sir,—The adoption of the proposed plan, to extend the railway to Epping, appears to those, who have entered into the necessary inquiries, as admirably calculated to promote the prosperity of the concern. I understood that measures were forthwith to have been adopted to carry out the preliminary steps, and that for this purpose a general meeting of the proprietors was to have been convened,—can you, or any of your well-informed correspondents, assign any cause for the delay. The company appears to be progressing steadily, and I am sanguine that those who invest at the present low rates will, ere long, find their property quadrupled, should the measure, to which I have above alluded, be carried into effect. Now that we have commenced receiving dividends, with the pleasing expectation that they will progressively increase each year, and with the implied promise that in future no half year will pass without one, we have reason to look upon our prospects as cheering. Yet there are other circumstances which, if taken advantage of, may, as I asserted before, raise the shares, which are now below 8*l.*, to par. For this cause I am most anxious to see the directors availing themselves of every suggestion having a tendency to bring about so desirable a result. Some plan ought to be adopted gradually to decrease the number of debentures, by the creation of a proportionate number of new shares, and thus relieve the shareholders of at least a portion of the enormous interest now payable on the debt—this might be done without prejudice to any one. It is true that something of the kind has been suggested as practicable, when the affairs of the company become more prosperous. The creation of new shares, in the present depreciated state of the market, may be a legitimate objection; nevertheless, I am sure it would be far more advantageous than to continue the present high rate of interest. Let all the shareholders strenuously exert themselves, both individually and collectively, to promote the advancement of an undertaking which has all the elements of success in itself, and which only requires a wise management to accomplish that, which will place this railway among the most fortunate of those which have been constructed.

March 20.

## IRISH RAILWAYS.

Sir,—As a constant reader of your Journal, I have, of course, observed the remarks made upon the Armagh and Coleraine Railways, with Mr. Barnes's reply in the Number of the 8th March, and a rejoinder in the Number of Saturday last. From the tenor of the remarks in the latter, it is not difficult to imagine the source from whence it emanates; but, as you say that your paper is open to any person who may be desirous of replying, I beg the favour of your inserting the few lines I intend to trouble you with upon the subject—noticing, at the same time, that it is not with any view to puff up one line to the prejudice of the other, but simply to expose the falsehoods of the party seeking to run down the line with which Mr. Barnes is connected. As to the alteration of the names by which his railway has been called, he can best give the explanation—and which, no doubt, he will do—but I have had no communication whatever with him, nor is he aware of my writing this. It is perfectly well known, that the line was surveyed by Mr. Barnes and others several years back; but, in consequence of the state of Ireland, the plans have been lying dormant until the present time, when an opportunity offered for extending the benefit of railway communication to that country; this previous survey was perfectly well known to the other party, and it is stated that they, by some subterfuge or other, got a sight of the plans, which, after being well "ogled," a counter plan was got up, and well puffed up in the papers. As to the merits or demerits of the lines, I have nothing to say—merely observing, that they run side by side for miles, and, therefore, they are pretty well alike; it is, however, to be borne in mind, that this railway passes through land belonging to the City companies, particularly that of the Mercers, for nine miles continuously, and whichever they may sanction, in all probability the other companies will join them in obtaining. Now, about three weeks since, the parties were invited to attend on a Court-day at Mercers' Hall, and the result was, the unanimous adoption of Mr. Barnes's line, after fully hearing what each party had to say. When the remark is made, that it is presumed the Dublin, Belfast, and Coleraine Junction, will disappear as a mere bubble, it is really "too bad;" and the commencement of one paragraph, speaking of the letter from a Mr. Barnes, is not quite fair. It is perfectly well known who he is—he is the son of the late highly and deservedly respected clerk of the Mercers' Company, and the shareholders are members of the court of that company (Messrs. Suttons), and whose high respectability is well known. Had your correspondent added his name, we should have known what reliance might be placed upon his assertions; but, as he has not thought proper to do so (as Mr. Barnes did), I shall follow his example, merely observing, that one can well understand the vexation of a solicitor of but little standing, being exposed in his claim to be the originator of the line in question.

Cornhill, March 17.

A CONSTANT READER.

## VICTORIA IRON-WORKS.

Sir,—The proceedings, as announced in your very valuable publication, relative to these works, has excited my surprise, as well as that of your correspondent, "W. A.," London. That the cost of the Victoria Works to the Monmouthshire and Glamorganshire Banking Company did not exceed 16,000*l.* I believe is undeniable; and also, that the directors (one of them of long standing, and of the highest respectability, in the iron and tin trades of South Wales) expressed to the dissatisfied bank shareholders and others that it would certainly realise 120,000*l.*, is equally undeniable; but that there has been any dereliction of duty on part of the parties disposing of the works, as intimated by "W. A.," I cannot believe. The history of this concern, which has caused so much ruin, distress, and suicide, if published, would furnish a useful lesson to the community. The original lease granted to the projectors of this profitable concern by Sir Benjamin Hall, is as follows:—

For ninety-nine years commencing June 24, 1836.

Royalty on iron ore and coal, per 2570 lbs., Sixpence.

sale coal

No royalty on small coal unless coked, nor on coal consumed by engines.

Four furnaces to be built instantly, and an additional four in 1846.

Works subject to a rent charge of 200*l.* per annum.

Sir Roger Hopkins, Sons, and Co., took to the property on the above terms, and issued prospectuses, promising a return, in moderate times of the iron trade, of eighty-one per cent., and in the very worst of times 25 to 30 per cent. The terms on which the unfortunate shareholders were let into it were these:—

Royalties for coal and ironstone consumed in making pig-iron or castings, 6*s.* per ton.On every ton of No. 2 bar-iron, an additional sum of 1*s.* 6*d.* per ton." " rails, &c., 3*s.* 6*d.* per ton, in addition to 6*s.* on pig-iron." " coal exported or sold off the premises, 1*s.* per ton." " consumed by agents or workmen, &c., on premises, 9*d.* per ton.

I could give you a verbatim copy of this letting, but I fear it would be too long for your pages (but, if not, you are welcome to it); I will, therefore, make a remark or two, as brief as possible, on this taking and letting. Suppose we say 2 tons 10 cwt. of ironstone (with cinders), and 3 tons of coal, at 6*d.* per ton (the terms of Sir Roger's taking) would be 2*s.* 9*d.* on pig-iron, for which the shareholders were to be privileged, by paying 6*s.* per ton. These royalties to amount to 1500*l.* per annum for Victoria, and 1500*l.* per annum for Abercrombie. But these covenants were not satisfied with doubling their rates, but stipulated as follows:—*The company shall grant to the present lessees (in consideration of the benefits and advantages to be derived from the lease) FREE SHARES to the extent of SEVEN AND A HALF PER CENT. on the capital subscribed, without any present or future payment on account thereof.* That 200,000*l.* has been lavishly spent on the works—that the pits and shafts sunk thereon were placed in such situations as to command efficiently but a very limited extent of minerals, as well as being placed where no room for the deposit of the soil, &c., was to be found, in short, that the arrangements were of the most absurd and ridiculous order, is known far and wide, and needs no comment from my pen—to say nothing of the upper courses or series of ironstone proving (though this was contrary to the expectation of those well versed in mining) a complete failure, no wonder need be expressed at the deplorable condition to which five years brought the proprietors. The new lease to be granted by Sir B. Hall contains the following very low rates of royalty:—6*d.* per ton on ironstone and coal used in manufacture of iron; coal to agents and workmen free of royalty; two furnaces to be blown in on the 1st of May next, and to be kept in blast for twelve months; with other stipulations as to paying upon foreign ore if used, &c.; to blow four furnaces soon, as may be, &c. The utmost exertions are being used by a strong staff of managers, agents, and workmen, to get into blast by the time stated, as well as to carry on for the whole twelve months. The shareholders in the bank are looking anxiously for the completion of the sales, when it is expected that the shares, which have been freely sold at 7*l.* 10*s.* each, upon which 15*l.* had been paid, will realise a handsome premium, and thus benefit all parties.—March 19.

AN ENEMY TO JOINT-STOCK HUMBUG.

## NEW SCOTCH IRON COMPANY.

Sir,—I have been patiently awaiting some notice through your columns of a company recently projected in Glasgow, ostensibly for the manufacture of malleable iron, entitled "The West of Scotland Malleable Iron Company," with a capital of 100,000*l.*, to be carried on, as I am informed, under the management of Messrs. James and Douglas Baird, J. Merry, A. Cunningham, and J. Houldsworth. Now, Sir, so many of your readers being deeply interested in everything connected with the iron trade, it is only fair to hope, that you will endeavour to procure some information respecting this new undertaking, that they may understand on what views the projectors ground their anticipations of success.

CAMBRIDGE.

*Swansea, March 18.*  
[We have given insertion to the above, and shall readily publish any letter we may receive in reply—the vast and increasing importance of all matters pertaining to the manufacture of iron rendering information connected therewith of the greatest interest to our readers. We may add, that the names mentioned by our correspondent may be assumed as sufficient guarantee of the respectability and *bona fide* nature of the undertaking.]

## IMPROVED MANUFACTURE OF CAST-STEEL.

Sir,—As the petence of a process I suppose to be alluded to in your Journal of the 1st instant, and headed "Improved Manufacture of Cast-Steel," I shall feel obliged by your informing me of the name and address of the writer of the article in question, as I understand, through the information of Dr. Ryan, you have no objection, upon application, to give the required information.

JOHN JAMES OSBORNE.

*Macclesfield, March 8.*  
[Our invariable practice being, decidedly to refuse the names of all authors of communications which may appear through our columns, we cannot, of course, comply with the request of Mr. Osborne; we, however, insert his letter, that the writer of the paper may have the opportunity of answering it should he think fit to do so.]

## A TOAD IN THE SOLID COAL.

Sir,—I have just witnessed a very striking and extraordinary phenomenon—a toad occupying a cavity in a block of solid coal. It was found in a coal seam in the vicinity of Leeds, at a depth of twenty-one yards; the thickness of the seam of coal in which it was found is 1 yard 3 inches. The block was broken by a blow, and discovered a toad in a shrivelled condition—in fact, a mummified state. The block is most entirely solid; not a flaw or crevice to the amount of a hair's breadth was connected in any way with the cavity. I have most minutely examined it in every way, and I am sure no art could form the cavity in that coal. The cavity is somewhat egg-shaped, and the unoccupied space around the toad is more than that occupied by its body; to turn itself, however, in the cavity, was impossible. The interior looks as if it had once been plastic, and bears slight impressions of parts of the body of the toad, as of the feet, &c. No doubt, the cavity has been moulded in some measure by its strange tenant. The interior surface appears as if somewhat polished; the eyes and mouth seem completely sealed. I have gazed for an hour at this strange mummy, in its yet stranger coffin. You will understand that it was discovered in this state, and was not alive when found. A letter authenticated fact I have never met with.—March 13.

J. MURRAY.

**RADIATION OF HEAT.**—M. Melloni, of Naples, has just completed some very interesting experiments on the radiation of heat. The previous researches of Rumford and Leslie, proved that the surfaces of different bodies possess at very different degrees the faculty of giving out, by radiation, the heat of the substances which they envelope, and it has also been satisfactorily established that layers of the same varnish considerably modify the radiating power of the surfaces over which they are laid; showing, therefore, that the rays of heat given out by a substance, proceed not only from its surface, but the points around it to a certain depth. It, therefore, remained to measure numerically the thickness of the superficial layer which assists the radiation, and to this undertaking M. Melloni applied himself: he covered the faces of Leslie's cube with equal layers of a proper varnish, augmenting successively the number of layers, and, measuring each time with his thermometrical apparatus the radiating powers of the surface: he found that the power went on gradually increasing up to the seventeenth layer of varnish, when it became stationary. At this point, the total thickness of the varnish, as ascertained with the greatest possible minuteness, was about the four-hundredth part of a millimetre. In comparing this result with that which attended the use of leaf gold, M. Melloni found that a much thinner coating of gold would produce the same amount of radiation; but this difference is not to be imputed to the greater or lesser transparency of the coating, for lamp-black, which is very opaque, possesses like varnish the property of giving out heat from the layers on which it is placed.

The rails and chairs for the Newcastle and Berwick Railway, amounting to 27,000 tons, have been contracted for at 12*l.* per ton the former, and 7*l.* the latter.



## PROGRESS OF RAILWAYS.

The increase in the traffic receipts of the undermentioned twenty-five railways for the first eleven weeks of this year, as compared with the corresponding period of last year, amounts to 158,641l.—namely:

Birmingham and Gloucester .....	26545	London and Croydon .....	21781
Birmingham and Northampton .....	743	Manchester and Birmingham .....	8048
Eastern Counties .....	3371	Manchester, Bolton, and Bury .....	1061
Edinburgh and Glasgow .....	3728	Manchester and Leeds .....	4932
Glasgow and Greenock .....	189	Midland Company .....	15969
Glasgow, Paisley, and Ayr .....	2609	Newcastle and Carlisle .....	2071
Grand Junction .....	2809	North Union .....	3419
Great Northern .....	19447	Preston and Wyre .....	1314
Liverpool and Manchester .....	5678	Sheffield and Manchester .....	1545
London and Birmingham .....	9494	South-Eastern and Dover .....	28497
London and Brighton .....	4032	Ulster .....	194
London and South-Western .....	2108	York and North Midland .....	19777
		Total .....	2108,641

THE BOARD OF TRADE AND THE RAILWAYS.  
HULL AND GAINSBOROUGH LINE.

Of all the projects which have recently come before the public, that of a railway from Hull to Gainsborough seemed to us, and was universally acknowledged by the public to be, one of the most rational and useful in its objects, as well as solid in the advantages offered to the shareholders. It is not often that we confer unqualified approbation, nor is it in every, even the most sterling, undertaking that we observe such conspicuous merits as appear so prominent to others; neither is it often that we have found occasion to question the sagacity of the Board of Trade. But in the particular scheme before us, we see such incontestable advantages both to the community collectively, and to the shareholders individually, that we consider ourselves bound, in justice to the public as well as to the company, to offer a few remarks on its original professions and present position.

The company, formed as it was under the most favourable circumstances, with a board of directors which, numbering among its members the names of such men as the Hon. William Ashley, John Chapman, W. Petre Crauford, and others of unequivocal integrity, put the question of its *bona fide* character beyond all dispute, was framed to construct a railway that should connect, by the shortest and most direct route, the important manufacturing towns of Kingston-upon-Hull, Sheffield, Rotherham, Nottingham, Derby, Birmingham, Gloucester, Bristol, and the metropolis. The line they proposed would have reduced the present distance of 243 miles between Hull and London, to 166 miles—thus effecting a saving of seventy-seven miles over any existing, and of twenty miles over any projected, line.

It would also have been by far the most preferable medium for the transmission of manufactured and other goods sent to Hull, both for shipment and local consumption; and of agricultural produce from the north of Lancashire to the manufacturing districts; almost concentrated on its route. Such advantages to the community are, of course, reciprocal to the company; the extraordinary saving of time and distance, the consequent reduction of expense, the increased facilities for transit, and the ready opportunity for exportation, must obviously create a vast impetus to the passenger and traffic department of the line; and, coupled with the comparative inconsiderable outlay, enhance the returns and revenues of the company. With such undeniable and prominent advantages we, in union with the public, anticipated the favourable opinion of the Board of Trade, and, though we are astounded at a contrary result, we are not shaken in our original conviction respecting its merits and surpassing advantages.

The decision of the Board of Trade, preferring the line to Grimsby with a population of some 7000, instead of one to Hull with a population of above 70,000, has caused a very strong feeling of surprise, not to say disapprobation, in the public mind generally. We are at a loss to understand the grounds on which the Board have arrived at their decision, and await with curiosity their report on the subject: meanwhile, we understand, that the Hull and Gainsborough Company are determined vigorously to prosecute their claims in Parliament; and, entertaining, as we do, a strong opinion on the line, its character, objects, and benefits, we do not hesitate to avow our firm conviction of its ultimate and well-merited success.

**NEW RAILWAYS.**—The Gazette of last night contained the official notification that the Board had determined on reporting in favour of the Aberdare, Brighton, Lewes, and Hastings (Keymer Branch), Cocker-mouth and Worthington, Dunstable, London, and Birmingham, Erewash Valley, Manchester, Sheffield, and Midland Junction; Newark and Sheffield; North Wales Mineral Railway (Extension); Preston and Wyre (Lytham and Blackpool Branches); Shrewsbury, Oswestry, and Chester; Sunderland, Durham, and Auckland; Wear Valley; and recommending the postponement of the Ely and Bedford; Llannecon and Tavistock; South Devon and Tavistock.

**MINES IN THE UNITED STATES.**—By recent researches into the geology and mineralogy of North America, some interesting information has been elicited respecting the veins of silver and copper on the banks of Lake Superior. Dr. Jackson, who prosecuted the inquiry, has discovered that the copper is generally found in the native state, sometimes pure, and sometimes in alloy with the silver—the veins of silver being, at the same time, frequently found in the pure state, passing through large masses of copper in which not a trace of silver exists.

**DR. BEVAN'S NEW LIFE-BOAT.**—We have before us the model of a life-boat on a very simple and ingenious plan; the inventor is Dr. Bevan, of Dublin—a gentleman who has long devoted his abilities to the furtherance and practical adaptation of science. Without expressing any positive opinion of its merits ourselves, we will give the principle a full explanation, and leave it to the public to pronounce on its feasibility. The designer has only at heart the benefit of the community, and for that object is sincerely anxious for its general adoption, feeling, as he does, the fullest confidence in its advantages and its vast superiority over similar constructions. On a stem post and cutwater a deep keel is laid down, occupying the third of their length; on this two boats are constructed diametrically opposite to each other—or, in other words, back to back—so that, while the superior one represents the long boat of a ship, the inferior will represent that of a rowing gig. Having accomplished thus much, an outside, or shell-boat, is thrown outside, and, being planked from gunwale to keel, gives the whole the common character of a boat, but confers on it most important qualifications. Between the two boats on either side, from stem to stern, there is a large air cavity, and at either side of the keel there is another; these cavities effectually prevent sinking, while, by making the material of which the boat is composed more weighty below, and also by adding some iron bars, she cannot be capsized. By running tubes between the two boats outwards, from stem to stern, along the inner keel, she becomes a perfect sieve, wholly incapable of retaining water. If her sides be divided into airtight sections, she may be bilged with the utmost impunity; and, what is an object of no small importance, she is very portable, and may be carried by every ship. The device of this boat anticipates confidently, that if she should come into general use, she will become the model of construction for every boat launched, affording a perfect security against the common every day casualties of swamping, upsetting, and the like; and since it is obvious she may be made of any size, will be useful in the cabin as in the storm. As Dr. Bevan's object in furthering this invention is purely disinterested, and with a sole view of the benefit of the public, we should be happy to see it satisfactorily tested; the end is a great one, and considering the frightful disasters that daily occur at sea, and the great want of some simple and feasible means of safety and deliverance like the present, we trust some practical parties interested in the particular department which this invention promises so bountifully to benefit, will take the question up, and, at all events, make a trial of so important and laudable a contrivance. The model is lying at our office, and we shall feel great pleasure in submitting it to the inspection of any parties who may be desirous of seeing it.

## FOREIGN MINES.

**THE BRAZIL MAIL.**—The *Peterel* packet arrived at Falmouth on Thursday, from Rio de Janeiro, with the mails from whence she sailed on the 16th of January. Freight about 85,000l., of which upwards of 60,000l. is for the St. John del Rey Mining Company.—Exchange 24½ to 25.

## MINE ACCIDENTS.

**Wheal Spearn Mine.**—J. Nicholas was severely injured by a large stone falling down the shaft while filling the kibble.  
**Dudley Port, Coscely.**—T. Attwood was killed by a fall of coal.  
**Kingwinford.**—A. Bennett was killed at Ketley Colliery.  
**Holly Hill, near Dudley.**—Two men (one the butty's son) were killed while undermining some coal at Messrs. Evers and Martin's colliery.  
**Swansea.**—D. Rees was killed by a fall of coal while at work.  
**Eagle's Bush Colliery.**—Two men were much burnt by an explosion of foul air.  
**Maryann Colliery.**—J. Rees was burnt by an explosion.  
**Swinley Colliery, near Bolton.**—T. Martindale has since died from injuries he received on being thrown out of the basket when descending to his work, in company with his father and two brothers, who were more or less injured.

## Mining Correspondence.

## ENGLISH MINES.

## NORTH ROSKEAR MINING COMPANY.

**March 16.**—An account held on the mine of profit and loss for Dec. & Jan.:  
Dr.—Cost for December, 1844, and January, 1845 ..... £2066 3 10  
Cr.—Ore sold, less lords' dues ..... £6324 15 11  
Showing a profit of 1758l. 12s. 1d.; to which add balance in hand end of November, 1845, 4s. 8d.—making a total of 3703l. 16s. 4d.; from which deduct 1750l. for a dividend of 25s. per 1-70th share, leaves a balance in hand of 1953l. 16s. 4d.

## BOTALLACK MINING COMPANY.

**March 18.**—An account held on the mine of profit and loss for Nov. & Dec.:  
Dr.—To labour cost ..... £1145 7 8  
Merchants' bills, &c. .... 648 16 10—1794 4 6  
Cr.—Balance in pursuer's hand last account ..... £776 5 5  
Copper sold (254 tons 7 cwt. 2 qrs.) ..... £2903 10 3  
Dues ..... 122 8 4—9081 1 11  
Tin sold (30 tons 8 cwt. 1 qr. 18 lbs.) ..... 1026 10 0  
Dues ..... 51 6 6—975 3 6  
Sundries ..... 36 12 0—3869 2 10  
Showing a profit of 2074l. 18s. 4d.; from which deduct 1000l. for a dividend, leaves a balance in the pursuer's hand of 1074l. 18s. 4d.

## HOLMBUSH MINING COMPANY.

**March 17.**—In the 120 fathom level, east and west of the cross-cut, the lode continues about ten inches wide, and worth about 4l. per fathom. In the 110 fathom level, west of Hitchins's shaft, the lode is fifteen inches wide, and worth about 7l. per fathom; in the slopes in the back of this level, east and west of Michell's winze, the lode is sixteen inches wide, and worth 20l. per fathom; in the slopes west of Lobb's winze the lode is twenty inches wide, and worth 35l. per fathom; in the slopes west of the sump winze the lode is one foot wide, and worth 14l. per fathom; in the slopes west of Goldworthy's winze the lode is one foot wide, and worth 11l. per fathom. In the 100 fathom level, west of Hitchins's shaft, the lode is fourteen inches wide, and worth 18l. per fathom; at this level, east of Wall's shaft, the lode is small and poor; in the slopes west of Hitchins's shaft the lode is small, and rather poor, and the men are removed to stope a piece of ground east of the south cross-cut at this level, and also to stope a piece of ground in the back of the eighty fathom level, west of the south cross-cut; in the slopes west of the south cross-cut, at the 100 fathom level, the lode is eighteen inches wide, and worth 30l. per fathom; in the winze sinking below this level the lode is sixteen inches wide, and worth 28l. per fathom. In the ninety fathom level, west of Hitchins's shaft, the lode is six inches wide, producing stones of ore; in the slopes east of Pearce's winze the lode is sixteen inches wide, and worth 24l. per fathom. In the rise in the back of the 80 fm. level the lode is eight inches wide, producing stones of ore. T. RICHARDS.

## TAMAR SILVER-LEAD MINING COMPANY.

**March 17.**—The lode in the 135 fathom level is one foot wide, good work. Ditto 125 ditto—six inches wide, very rich work. Ditto 115 ditto—eighteen inches wide, saving work. Ditto 105 ditto—still in slidy ground, and unproductive. Ditto 95 ditto—has not been broken since last report. Ditto 85 ditto—nine inches wide, can and ore. Ditto 75 ditto—still disordered by slide courses.

In the winze rising in the back of the fifty-five fathom level the lode is one foot wide, at present poor. The incline plane shaft is sunk four fathoms below the eighty-five fathom level on the incline. We sold on the 8th inst. a parcel of silver-lead ore, computed 108 tons, at 22l. 6s. 6d. per ton.

**North Tamar.**—The sumpmen are still engaged cross-cutting towards the lode. The lode in the 50 fathom level north has not been broken. Ditto 40 ditto—one foot wide, good work at present. Ditto 30 ditto—opened to a large size, producing a large quantity of mundic, with some ore.

**Wheal Hancock.**—The engine-shaft is sunk 2 fms. 3 ft. below the thirty-seven fathom level; the ground is a little more favourable for sinking. In the cross-cut at the 27 fm. level the ground is still very hard for driving. J. SFRAGUE.

## WHEAL GILL MINING COMPANY.

In presenting you with a report of the operations now carrying on in this mine, I beg to say we are driving the forty fathom level east on the course of the lode; we have driven through a large lode, composed of jack, peach, and some very fine stones of yellow ore; our lode at this time is about two feet wide, and has a promising appearance; we are also driving a cross-cut at the forty, from the present engine-shaft to the new, and expect it will be driven into the shaft by the time the shaft is sunk to that depth. Taylor's, or the new engine-shaft above alluded to, is already sunk 20 fms. 3 ft., the ground being still very favourable for sinking. We are driving the sixteen fathom level east, and have met with three cross-courses in driving seven fathoms; between the cross-courses the lode varied from two to three feet in width, composed chiefly of soft spar and mundic, with spots of copper ore; the end is about three fathoms east of the cross-courses, and is improving in appearance. The walls of the engine-house and stack are up, and will be covered in this week; we are expecting the castings on the mine hourly; as soon as they arrive we shall commence to heave the engine in. We have about 220 tons of jack on the surface, nearly ready for sale, and about twenty-four tons of copper of good quality.

NICHOLAS FAULL.

At a meeting of the shareholders, on the 6th inst., it was resolved—That a call of 1s. per share be made, to be paid into the East Cornwall Bank, and that 400l. out of the 600l., due to the bank, be paid out of this call.

## COOK'S KITCHEN MINE.

**March 15.**—North Tincroft lode, in the slopes in the bottom of the sixty fathom level, east and west of the shaft, is three feet wide, and worth 10l. per fathom. The pitch in the bottom of the fifty, west of the shaft, continues to look well, and the men likely to get good wages, at 6s. 8d. in 20s. In the cross-cut south from flat-rod shaft, at the seventy fathom level, the ground is somewhat harder. Chapple's lode, in the 170 east, is at present disordered by the cross-course. In the 160 west the lode is four feet wide, and worth 7l. per fathom for tin. In the 140 east we have commenced cutting through the lode; we expect to cut Eudey's lode in the cross-cut north, at the ninety fathom level, in about six feet more driving. Dunkin's lode, in the 170 west, is three feet wide, with a very promising appearance. We have cut the lode in the cross-cut north, at the 140, west of the little cross-course; the part which we have seen is three feet wide, but have no north wall; it produces good work for tin, but cannot yet ascertain its value, not having driven sufficiently on it—hope to report more fully on next week. In the cross-cut south from Rogers's shaft, at the twenty-nine fathom level, we have driven twelve fathoms through the elvan, and have met with small strings of ore; we are daily expecting to cut the lode on the other side of it. Our tribute departments are without any material alteration; owing to the severity of the weather, we have not been able to get on with our tin dressing as we should have done. We expected to have sampled next week about 1000l. worth of tin, but, should this weather continue, we fear it will considerably decrease it. A. EUDEY.

## UNITED HILLS MINING COMPANY.

**March 14.**—In the eighty, east of Williams's shaft, the lode is eight feet wide, three feet good ore, worth 50l. per fathom; west of ditto the lode is three feet wide, coarse in quality, worth 6l. per fathom. In the seventy, east of eastern shaft, the lode is two feet wide, nine inches on the north part ore of average quality, worth 7l. per fathom; in the seventy, west of diagonal shaft, the lode is three and a half feet wide, producing but a small quantity of ore, worth 5l. per fathom; the winze under the seventy, east of Williams's, is sinking in the country to the north of the lode. In the winze under the sixty, east of eastern shaft, the lode is three and a half feet wide, two feet good ore, worth 20l. per fathom. In the fifty cross-cut, south of ditto, the ground is a little more favourable for driving. In the winze under the forty, west of James's shaft, the lode is two and a half feet wide, two feet ore of fair quality, worth 15l. per fm. In the sixty, west of James's shaft, the lode is four feet wide, two feet on the north part ore of fair quality, worth 15l. per fathom. In the thirty, east of eastern shaft, the lode is eighteen inches wide, one foot ore of average quality, worth 6l. per fathom. In the ten, east of ditto, the lode is poor and unproductive. At Wheal Sparrow, in the fifty, east of Gibson's shaft, the lode is four feet wide, ore throughout, but coarse in quality, worth 4l. per fathom; in the fifty, west of ditto, the lode is three feet wide, producing but little ore, worth 8l. per fathom. In the forty, east of ditto, the lode is two feet wide, with but little ore, worth 2l. per fathom; in the forty, west of ditto, the lode is eighteen inches wide, poor. In the thirty, east of Richard's shaft, the lode is two and a half feet wide, one foot on the south part ore of fair quality, worth 4l. per fathom. Fifty cross-cut, driving south of Gibson's, to cut Stacey's lode.

T. TREVENEN. R. WILLIAMS.

## BEDFORD UNITED MINING COMPANY.

**March 17.**—At Wheal Marqued the driving of the seventy fathom level cross-cut south has been much impeded, from the severe frost for some time past, and at present prevailing. The lode in the fifty-eight fathom level east is two and a half feet wide, composed of spar, mundic, and ore, worth 8l. per fathom; and in this level west the lode is three feet wide, composed of spar, mundic, and ore. The lode in the winze, sinking in the bottom of the forty-seven fathom level east, is two feet wide, and worth 20l. per fathom. In the forty-seven fathom level west the lode is one foot and a half wide, composed of spar, mundic, and ore. The lode in the deep adit level remains without alteration. The pitches continue to look well.—At Ding Dong, in consequence of a breakage in the lift, the sinking of Thomas's engine-shaft has been suspended during the past week. The lode in the twelve fathom level east is about twenty inches wide, composed of spar and mundic, with good stones of ore.—At Wheal Tavistock Phillips's engine-shaft is now about twenty-two fathoms under the surface; the lode is one foot and a half wide, composed of gossan and spar.—At Delves's Kitchen we are proceeding satisfactorily with the clearing of the adit level.

JAMES PHILLIPS.

## CORNUBIAN MINING COMPANY.

**March 17.**—The lode in the eighty-six fathom level, going west of Murray's engine-shaft, is three feet wide, of a flookan nature, and yielding some rich stones of lead; at this level, going east, the lode is also large, composed of flookan, soft spar, and mundic. The two pitches working over at the seventy-eight fathom level, west of Murray's shaft, are looking favourable, having a tolerable good lode. The pitch noticed last week, working by eight men, on the north lode, at the seventy fathom level, as having much improved, continues to look well. Other pitches remain without alteration. R. ROWE.

## CONSOLIDATED TRETOIL MINING COMPANY.

**March 17.**—The lode in the sixty fathom level, west of Henwood's shaft, is one foot wide, producing good stones of ore; price for driving 7l. per fathom; ditto, east of Henwood's shaft, the lode is one foot wide, producing a small quantity of ore; price for driving 6l. per fathom. The lode in the forty fathom level, east of ditto, is fifteen inches wide, worth 2l. per fathom; price for driving 8l. per fathom—tribute, when set, 11s. in the 1l. We have sampled this day fifty-four tons of ore. H. WILLIAMS.

## WEST WHEEL JEWEL MINING ASSOCIATION.

**March 17.**—The rise in the back of the 100 east, on Wheal Jewel lode, is worth 6l. per fm.; the lode in the 100, west of ditto, is 6 in. wide, composed of spar and stones of ore. The lode in the rise, in the back of the eighty-five, east on ditto, is worth 6l. per fathom; the lode in the winze, sinking below this level, is worth 6l. per fathom; the lode in the eighty-five, west on ditto, is nine inches wide, unproductive. The winze sinking below the seventy, west on ditto, has not been taken down since our last; the lode in the winze sinking below the same level, east of cross-course, is worth 4l. per fathom. The ground in the eighty-five cross-cut north is still favourable. The forty-two east, on Buckingham's lode, is worth 2l. per fathom. The thirty east, on Morcom's lode, is two and a half feet wide, composed of spar, mundic, and spots of ore. The lode in Wilkinson's engine-shaft, sinking below the fifteen fathom level, is two and a half feet wide, composed of spar, mundic, and stones of ore.

STEPHEN LEAN. RICHARD JOHNS.

## HANSON MINING COMPANY.

**March 17.**—I beg to say, the engine-shaft is sunk to the fifty-four fathom level, and our sumpmen have commenced driving at that level to cut the lode, which I expect will be done in a few days. The lode in the forty-four fathom level east is eight inches wide, unproductive; the west end, same level, is disordered by a horse of killas, and poor for ore. We have commenced sinking Garden shaft under the thirty-one fathom level, in which the lode is twenty inches wide—a very kindly lode, with good stones of ore. In the thirty-one fathom level, east of Garden shaft, the lode is divided by a horse of killas; the south part of the lode is twenty inches wide, the north six inches; both parts of the lode contain a great deal of mundic—a very kindly lode, with some ore; in the thirty-one west the lode is small and unproductive. At Treza we are rising stones for the engine-house, and have a good quarry. Z. WILLIAMS.

## CALLINGTON MINING COMPANY.

**March 17.**—In the ninety fathom level, driving north of Johnson's engine-shaft, the lode continues productive, leaving good tribute ground; in the south end, the lode has not been taken down. In the eighty fathom level north, the lode is worth 5l. per fathom; in the south end it has not been taken down. In the sixty fathom level we are driving through tribute ground. At the North Mine, in the eighty fathom level, the lode has been intersected and hove by a cross branch. In the seventy fathom level south we are driving through productive ground, leaving back and bottom that will work at a moderate tribute—the cauter lode, at this level, continues much the same as last week. In the sixty fathom level the lode is producing silver-lead ore; in the forty fathom level we are now driving in the same channel of elvan that we have driven through at the sixty fathom level south mine, and find the lode continuing productive, being fourteen inches big, with good branches of silver-lead ores. We sampled on the 13th inst. seventy tons of silver-lead ores. J. T. PHILLIPS.

## TINCROFT MINING COMPANY.

**March 17.**—I beg to hand you my report of these mines as usual. The engine-shaft is now about four fathoms below the eighty fathom level, ground favourable, the lode standing to the south. The lode in the eighty fathom level east is twenty inches wide, six inches good ore, worth 10l. per fathom. The lode in the eighty fathom level west is worth 20l. per fathom, leaving good back and bottom. The lode in the seventy fathom level east is three feet wide, nine inches good quality ore, worth 20l. per fathom. The lode in the sixty and seventy fathom levels west is disordered by cross branches, and producing but a small quantity of ore. The lode in the sixty fathom level east is two and a half feet wide, producing some good ore, and is very promising. The rise in the back of this level against Willoughby's shaft, worth 15l. per fathom; the said shaft coming down on this rise, worth 12l. per fathom. The lode in the fifty fathom level west is three feet wide, ore throughout, worth 9l. per fathom. The forty (east and west) is unproductive. The pitches in this part of the mine continue to yield fair quality work. Palmer's shaft, on East Pool, south lode is about three fathoms between the sixty fathom level, producing some ore and kindly; the sixty fathom level west on north lode, which has been unproductive for some time, is now improving. The lode in the winze, sinking under the sixty fathom level, is two feet wide, producing some good quality ore, worth 9l. per fathom, and improving as we sink; the lode in the winze, sinking under the forty-eight fathom level, is twenty inches wide, worth 6l. per fathom. Our tributaries in this part of the mine are working with spirit, and making fair wages at their different tributes. W. PAUL.

## GREAT WHEEL MARSHA CONSOLIDATED MINES.

**March 15.**—Herewith I beg to send you the annexed report. At the new mine, in the twenty fathom level west, the lode is four feet wide, composed of spar and mundic, intermixed with ore, with improved appearances; we expect to be soon under the shoot of ore we have in the level above; going east in the twenty the lode is 3 ft. 6 in. wide, composed of soft spar, mundic, peach, and copper, and improving. In the ten fathom level west we are now through the cross-course, which is fifteen or sixteen feet wide; we have the lode west of this four feet wide, two feet of which is composed of soft spar, and burnt-up mundic, coated and intermixed with black oxide of copper, presenting appearances most flattering, indicating abundance of ore in depth. In the deep adit we are still driving by the side of the lode, with ground favourable; we intend about the end of the month to cut through this lode, to examine its composition and bearing. The engine-shaft, at the higher mine, is down 8 fms. 4 ft. below the seventy; the lode is seven feet wide, composed of spar and large quantities of mundic, interspersed with ore. In sinking under the sixty we have the lode four feet wide, two feet of which is good saving work, the remainder is composed of spar, spotted with ore; in the sixty east the lode is just as last reported, but having an increase of water coming from the south, we have commenced driving south to see if any part of the lode is gone off in that direction. It appears at Wheal Maria they have two lodes, both rich, one underlying south, the other north. It is very probable that our south lode at the new mine is Wheal Maria north lode; their south lode is supposed to pass through our sett, south of our present workings. The distance of Wheal Maria lodes, apparently running through Wheal Martha sett, from east to west, is nearly a mile and a half, which, of course, greatly enhances the value of this sett; we are still coasting, endeavouring to cut Wheal Maria south lode. T. PESALUNA.

## TRELEIGH CONSOLS MINING COMPANY.

**March 15.**—In the seventy, west of Good Fortune, the lode is about three feet wide, with stones of ore, and has a kindly appearance; in the seventy, east of ditto, the lode is two and a half feet wide, spar impregnated with ore. In the sixty, west of ditto, the lode is twenty inches wide, worth about 6l. per fathom, not as yet got clear of the cross branch; in the rise, above the sixty east, no lode taken down; rising south in softer ground, when holed the lode will be taken down. In the fifty, west of Symons's, the lode is two feet wide, worth 12l. per fathom. In the forty-four, west of ditto, the lode is about two feet wide, with mundic and stones of ore. In the thirty-four, west of ditto, the lode is two and a half feet wide, producing good stones of ore. In the twenty, west of ditto, the lode is about two feet wide, looking kindly with ore and mundic. In the adit, west of ditto, the lode is one foot wide, looking kindly with stones of ore, not of much value. In the fifty, west of Garden's, the lode is eighteen inches wide, producing stones of ore. I beg to remark we have kept out the water through the week at Good Fortune well, and the men have worked regular. On the north lode the water is at the seventy fathom level; but we hope by the working of North Down's engine, which we have set to work to day, will enable us soon to drain this part of the mine. We have commenced heaving in the engine, and shall lose no time until completed. The present week has been a very severe week of weather. WILLIAM SYMONS.

## CARADON WHEEL HOOPER MINING COMPANY.

I beg to hand you my report of this mine—the prospects at present are of a very encouraging nature. The lode recently discovered in the southern extremity of the thirty-four fathom level cross-cut, in the South Caradon mine (about 150 fathoms west of this sett), still continues rich, and increasing in size; the ground about the lode is soft. The above lode has greatly increased the value of this mine, as it runs through the full length of the sett. The lode lately discovered in the saw-pit, is ten feet wide, composed of gossan, mica, fluor spar, and particles of copper. The engine-shaft is sunk nine fathoms; several branches have been cut in the shaft, composed of spar and copper, running into the lodes; a two-horse whim is now in work, a timber house is erected, a smith's shop is in building, and, in about a fortnight, it is expected, the engine-house will be commenced. J. SEXTON.

**WHEAL CONCORD.**—A meeting of the shareholders was held at the New Inn, Yuell Down, on Monday, the 17th inst., when an engine was ordered to be immediately erected, and a call of 1l. per share was made. The shareholders were not only highly pleased with the appearances of the mine, but surprised to see so large a pile of lead ores on the grass, which had been raised from the back of the lode. This mine is about a mile north of the rich Wheal Maria, and is supposed to be on the same lode as Wheal Friendship, from which such large profits have been realised.



## Current Prices of Stocks, Shares, &amp; Metals.

## ENGLISH AND FOREIGN STOCKS.

STOCK EXCHANGE, Saturday morning, Twelve o'clock.	
Consols, Money, 99½	Russian, 5 per Cents, 116½ 117½
ditto, Account, 100	Spanish, 5 per Cents, 30½
Exchequer Bills, 99 61 pm.	ditto, 3 per Cents, 40½
Belgian, 5 per Cents, 106½ 11	Brazil, 5 per Cents, 89 91
Danish, 3 per Cents, 89 90	Chili, 6 per Cents, 101 8
Dutch, 5 per Cents, 63½	Colombia, 5 per Cents, 14½
ditto, 4 per Cents, 63½	Mexico, 5 per Cents, 36½ 7
Portuguese, Conv., 5 per Cents, 68 9	Peru, 6 per Cents, 32½ 31

[From our own Correspondents.]

**LATEST PRICES OF IRISH STOCKS.**—3 per Cent. Consols, 99½ to 99½; 3 per Cent. Reduced, 31 to 31; Bank Stock, 102½ to 102½; 94 per Cent. Debentures, 94½ to 94½; Bank Stock, 211½; Dublin and Kingstown Railway, 243½; Drogheda, 89½; Gt. Southern and Western, 12½; Dublin and Belfast Junction, 64½; Dublin and Athlone, 2½; Dublin and Galway, 3½; Belfast and Ballinacorney, 3½; Limerick and Waterford, 4½; Dundalk and Enniskillen, 2½; Wexford and Carlow, 2½; Hibernian Bank, 26½; National Bank of Ireland, 14½; Royal Bank, 14½; National Insurance, 40½; Patriotic, 11½; Mining Company of Ireland, 14½; Wicklow Copper Mine, 18½; City of Dublin Steam Company, 107½; British and Irish Steam Company, 53½; Dublin and Glasgow ditto, 44½; Steamship Building ditto, 54½.

## CURRENT PRICES AT LIVERPOOL—THURSDAY EVENING.

Stock.	Closing pr.	Sales.	Stock.	Closing pr.	Sales.
Aberdeen Railway	21½	6½	London and South-Western	79 80	79½
Barnsley Junction	64 7½	6½	London and York	31 31½	31½
Belfast and Ballinacorney	34 3½	—	London and Ely	51 51½	—
Blackburn and Accrington	64 6½	—	Lynn and Dereham	18 18½	—
Blackburn and Bolton	4 41½	4½	Leeds and West Riding	61 71	71½
Blackburn and Preston	151 151½	151½	Limerick and Waterford	42 42½	—
Birkenhead, Manch., &c.	91 10 91 10½	91 10½	Manchester and Gole	104 104½	—
Birmingham & Gloucester	134 133	—	Manchester & Birmingham	64 65	—
Bolton, Wigs., & Liverpool	111 111½ 111½ 111	111	Manch., Bolton, & Bury	163 164	164½
Bristol and Exeter	82 83	—	Manch., & Rosendale	144 144½	144½
Bristol and Gloucester	84 84½	—	Manch. & Buxton	11 11½	—
Caledonian	91 91½ 10 10	10	Manchester and Leeds	145 147	—
Cambridge and Lincoln	12 12½	—	Midland Stock	140 141	140½
Chester & Birkenhead	46 47 47	47	Mullingar and Athlone	2 2½	—
Chester and Holyhead	82 82½	—	Newcastle and Berwick	14 15 14½	14½
Churnet Valley	64 65 65 7	65 7	Newcastle and Carlisle	133 134	—
Cork and Brandon	34 34½	—	Newcastle & Darlington	47 48	—
Cork & Limerick, Direct	1 1½	—	North British	174 175	—
Direct Northern	44 44½	—	North Kent	34 34½	—
Dublin and Belfast	61 61½	—	North Union Stock A.	144 146	—
Dublin and Coshel	12 12½	—	North Union Stock B.	84 86	—
Dublin and Galway	21 21½	21½	North Wales Mineral	121 123	—
Dublin and Drogheda	84 84½	—	Norwich and Brandon	17 18	—
Dundalk & Enniskillen	34 34½	—	Oxford, Worcester, & Rugby	34 34½	—
Dundee and Perth	31 31½	31½	Preston and Wyre	31 32 31½	31½
Eastern Counties	211 211½ 211½	211½	Scottish Central	54 54½	54½
Edinburgh and Glasgow	61 61½ 61½	61½	St. Helens & Runcorn G.	24 24½	—
Edinburgh & Granton	14 14½	—	Sheffield and Lincoln	41 41½	—
Edinburgh & North	11 11½	—	Sheffield & Manchester	113 113½	113½
Ely and Bedford	21 21½	—	Shrewsbury & Gloucester	44 44½	44½
Glasgow, Dumfries, &c.	11 11½ 11½	11½	Shrewsbury, Wolverham., &c.	44 44½ 44½	44½
Glasgow and Greenock	174 174½ 174½	174½	South-Eastern	43 43½	—
Glasgow, Paisley, & Ayr	62 62½	—	South Wales	61 61½	61½
Grand Junction	225 227	—	Trent Valley	211 221	—
Gt. Grimsby & Sheffield	31 31½	—	Ulster and Londonderry	44 44½	—
Gt. North of England	190 191	—	West Yorkshire	34 34½	—
Great Western	175 181	—	Wexford and Carlow	21 21½	—
Harwich	11 11½	—	Yarmouth and Norwich	27 28½	—
Huddersfield and Manch.	54 54½	—	York & North Midland	102 104	—
Huddersfield & Sheffield	44 44½	—	York and Selby	67 68	—
Hull and Selby	96 98	—	Jamaica	30 30½	—
Kendal & Windermere	44 44½	—	Boulogne and Amiens	111 112	111½
Kilkenny Junction	1 1½	—	Can. Central of France	174 181	—
Lancaster and Carlisle	34 34½	—	Lyons and Avignon	21 21½	21½
Lancaster and Preston	53 54½	54	Northern of France	61 61½	61½
Leeds and Bradford	45 47	—	Orleans, Tours, & Bordeaux	101 101½	101½
Leeds and Dewsbury	34 34½	—	Paris and Lyons	41 41½	41½
Leeds and Thirsk	54 54½ 44 44½	44½	Paris and Orleans	52 53	—
Liverpool & Manchester	206 208	208	Paris and Rouen	41 41½	41½
Liverpool and Preston	31 31½	—	Paris and Strasbourg	21 21½	—
London & Birmingham	190 191 231½	231½	Rouen and Havre	31 31½	—
London and Blackwall	71 71½	—	Sambre and Meuse	54 54½	—
London and Brighton	64 64½	—	Strasbourg and Basle	13 13½	—
London and Croydon	18 18½	—	Tours and Nantes	31 31½	—
London and Portsmouth	21 21½	—			

13, Castle-street and Stock Exchange, Liverpool.

JOHN GRAVES.

**LEEDS, THURSDAY.**—The share market continues brisk, and prices have an upward tendency. It has been reported, though with what degree of truth we know not, that Mr. Hudson has leased the Great North of England, at 8 per cent. and one half surplus profits—this arrangement we think would hardly be so satisfactory as the 10 per cent. certain, which Mr. Hudson proposed; the old stock, however, is firm at 190, and the 40½ shares, at 45½—prices which fully evidenced the confidence of the public in this stock. Midlands are firm at 140½; Eastern Counties partly urged upwards by the prospect of an issue of new shares, and partly by the Board of Trade report, are good at 221. Manchester and Leeds are advancing, buyers are compelled to give 147½ ex div. Lancaster and Carlisle, to which we draw attention last week, at 34½, are now selling at 30½, and will be 30½, higher before we next write. North British barely maintain their last week's figure of 74½; we urged this stock on our friends two months ago at par. Leeds and Bradford are better than they were a week ago at 30½; as are the Extensions at 27½. Thirsk are better at 40½. West Yorks improving at 12½. Rindings are hardly so strong as before, at 50½. The North-Western shares have come out, and at one time reached 57½; they leave off at 34½ to-day.

## ROYAL NORTH OF SPAIN RAILWAY.

We last week briefly adverted to this project, and, as we augured, it has taken with the public—the shares being quoted at from 2½ to 3 pm. With the speculative advantages arising from transactions in shares for the "coming out" we have sought to do, our object being alone to direct attention to the prospects which the adventure holds out to the capitalist, and those who may embark in the speculation. We observed, last week, that one-third of the capital required has been subscribed by parties in Spain, and, however, we may exclaim against, and censure, the Spanish Government for want of faith as regards the loans advanced by this country, yet it will be readily admitted that Spain possesses individual wealth, many of the capitalists of which are in a position to vie with those of this country. It is, therefore (*prima facie*) strong evidence of the opinion entertained by those parties who have associated themselves with the enterprise, as to the beneficial results which may be contemplated from the execution of the project; and, judging from the past, we are inclined to think that parties in Madrid would not be disposed to invest their money without first having ascertained the merits of the undertaking and the prospective advantages it presents. It will be seen, on reference to the prospectus, that nearly thirty of the first grade as senators, and connected with the Spanish Government, have allowed their names to be introduced in the prospectus as patrons, and highly to the credit of the parties who have brought about this measure we believe there is no one patron who is not interested as a shareholder. This we recommend to the attention of many of the projectors of schemes, who invite parties to lend their names, but, who, at the same time, take good care not to risk their capital.

In adverted to the projection of this railway, we should have especially named in our last notice, Mr. Keily, a gentleman to whom we believe the sole credit is due for having accomplished the object in view—that of securing the aid not only of those most influential in Madrid, but also obtaining powers from the Government, far exceeding, as we are given to understand, the expectations of those most sanguine. The directors in Madrid are composed of gentlemen, whose business habits and whose names are sufficiently known to the mercantile world, to ensure not only application to business, but integrity; while in London, the names of the chairman and deputy-chairman, with the body of directors generally, must give to the shareholder confidence in the undertaking, while it ensures to him a proper application of the resources placed at their command. We shall next week give some statistics, which will better enable our readers to judge of the merits of the line, and which we hoped to have been in a position to present on the present occasion.

**VENTILATION OF COLLIERIES AND THE EXPORT DUTIES ON COAL.**—The Marquis of Londonderry, on Tuesday evening, complimented the Government for the course they had adopted respecting the better ventilation of coal-pits. He expressed his belief that the report of Professors Faraday and Lyell, which, after a consideration of the coal-owners' suggestions, would be eventually submitted, would prove highly beneficial to the miners generally. He also took that opportunity of thanking the Government, on behalf of that trade of which he was a member, for removing the duty on the export of coals—a measure which, he considered, would tend greatly to improve the condition of the pitmen, who, for six or seven months past, had suffered great misfortune and wretchedness, in consequence of the conduct they had pursued under the influence of designing demagogues. They were a class of men usually respectful to their employers, industrious, and peaceable; but he regretted that they had been excited and upheld by persons from whom better things might have been expected.

## COPPER ORES.

Sampled March 5, and sold at Pearce's Hotel, Truro, March 20, 1845.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Wh. Maria	1116	£1110 6	Wh. Jewel	80	5 1 0
ditto	111	11 11 0	ditto	54	4 3 0
ditto	110	11 14 0	ditto	49	10 0 0
ditto	103	12 10 0	ditto	48	3 18 0
ditto	93	14 0 0	ditto	38	3 13 0
ditto	91	13 11 0	Par Consols	72	4 3 0
ditto	81	12 19 0	ditto	67	3 4 0
Foldice	67	4 8 0	ditto	66	5 8 0
ditto	64	5 3 6	Fowey Consols	118	4 7 6
ditto	63	4 18 6	ditto	82	3 10 0
ditto	56	4 1 6	Holmbush	101	9 10 0
ditto	49	4 2 0	Wh. Seta	82	6 12 6
ditto	48	3 15 6	ditto	34	4 8 6
ditto	39	3 11 6	ditto	38	6 7 0
ditto	30	2 5 6	South Towan	89	3 18 0
ditto	19	3 14 6	Wh. Lydia	66	3 17 0
West Caradon	139	6 8 0	Bedford	11	6 11 6
ditto	153	6 3 6	Wh. Maiden	53	6 15 6
ditto	87	5 5 6	Carharrack	37	6 6 6
Tresavean	293	14 5 12	Wh. Henry	45	4 19 0
Par Consols	205	1003 8	ditto	9	2 3 6
Fowey Consols	209	721 3 0	Wh. Anna	33	3 3 0
Holmbush	196	1588 17 6			

## TOTAL PRODUCE.

Wheat Maria	676	£2383 19 0	Wheat Seta	174	£830 0 0
Foldice	434	1830 2 0	South Towan	106	673 0 6
West Caradon	432	2953 8 0	Wh. Lydia	110	761 15 0
Tresavean	411	1618 6 0	Bedford	110	761 15 0
Wheat Jewel	293	1452 12 0	Wh. Maiden	53	345 14 9
Par Consols	205	1003 8 0	Carharrack	37	512 6 6
Fowey Consols	209	721 3 0	Wh. Henry	45	247 5 6
Holmbush	196	1588 17 6	Wh. Anna	33	103 19 0

Average standard, 95½ lb. Average produce, 339 tons 6 cwt. Amount of money, 22,762½ lb. Average standard of last sale, 101½ lb. Average produce ditto, 8.

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Mines.	Tons.	Amount.	Mines.	Tons.	Amount.
English Copper Company	369	£2956 5 0	English Copper Company	449	2658 4 0
Virian and Sons	508	3295 3 6	Virian and Sons	508	3295 3 6
Freeman and Co.	240	2258 1 6	Freeman and Co.	240	2258 1 6
Greenfield and Sons	3074	3455 14 9	Greenfield and Sons	3074	3455 14 9
Stims, Williams, Nevill, Druce, and Co.	476	3068 8 0	Stims, Williams, Nevill, Druce, and Co.	476	3068 8 0
Williams, Foster, and Co.	898	5010 7 9	Williams, Foster, and Co.	898	5010 7 9

Totals, 3450 tons £22,762 5 0

Copper ores for sale on Thursday next, at Pearce's Hotel, Truro. — Mines and Parcels. — United Mines 800—Consolidated Mines 764—Trehellian 310—Tresavean 290—Fowey Consols 215—Hallenbeag 293—Lanivet Consols 146—Wheat Ellen 120—Wheat Bush 117—Wheat Jewel 108—West Trehellian 14—Trehellian Consols 73—Williams's East Dues 43—Nanjilles 14. Total, 3264 tons.

Copper ores for sale on Thursday week, at Serpell's Hotel, Pool. — Mines and Parcels. — East Wharf Croft, &amp;c., 822—Tincroft 430—Camborne Vean, &amp;c., 110—Tresavean 290—Barrier 301—South Caradon 300—Dolcoath 283—South Wharf Bassett 260—Par Consols 245—East Pool 216—Fowey Consols 204—West Wharf Jewel 198—North Boskew 157—Tresavean 138—Wheat Trehavas 64—Gololphin 63—Trehellian 54—Condurow 23. Total, 4169.

## COPPER ORES.

Sampled on the 26th of February, and sold, on the 19th March, at Swansea.

Mines.	Tons.	Prod.	Stand.	Price.	Mines.	Tons.	Prod.	Stand.	Price.
Knockmahon	117	8½	99½	£6 11 0	Coburn	106	22	80½	£15 9 0
ditto	102	9	97½	6 11 0	Chilli	73	41½	80	39 18 6
ditto	100	64	103½	4 15 0	ditto	24	38½	80½	28 16 6
ditto	95	94	98½	7 6 0	ditto	19	26½	82½	19 16 6
ditto	85	65	100½	4 13 0	ditto	67	28½	81	21 2 0
ditto	80	8	102½	5 18 0	ditto	47	29½	80½	21 5 0
ditto	58	74	102½	5 8 0	ditto	9	29	80½	21 1 0
ditto	53	100½	96½	7 13 0	Bearhaven	126	104½	95½	7 9 0
Coburn	83	123½	88½	8 12 0	Cronebane	120	61	103½	4 17 6
ditto	81	204½	82½	14 14 0	Davies's ore	40	34	126½	2 3 6
ditto	53	19½	86½	8 12 0	ditto	18	4	119½	2 10 6
ditto	13	144½	84½	10 3 0	Durham	37	54½	111	3 11 6
ditto	128	121½	88½	8 8 6	Vigra & Cloga	26	34	182½	1 17 6
ditto	100	122½	86½	8 8 6	ditto	17	44	113½	3 5 6
ditto	57	121½	86½	8 16 0	ditto	5	13	108½	9 0 0

Total tons, 2007. Total amount, £19,370 2s. 0d.

## TOTAL PRODUCE.

Knockmahon	694	£4213 16 6	Cronebane	120	£585 0 0
Coburn	670	7350 14 0	Davies's ore	38	132 9 0
Chilli	239	5927 18 0	Durham	37	160 8 0
Bearhaven	126	938 14 0	Vigra & Cloga	48	161 2 6

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Mines.	Tons.	Amount.	Mines.	Tons.	Amount.
English Copper Company	626	£3715 13 6	English Copper Company	626	£3715 13 6
Virian and Sons	116	3336 0 0	Virian and Sons	116	3336 0 0
Williams, Foster, and Co.	548	4959 8 0	Williams, Foster, and Co.	548	4959 8 0
	717	7369 0 0		717	7369 0 0

Copper ores for sale March 26. — Coburn 106—101—80—52—42—99—37—84—79—66. — Cnba 100—88—60—51—48. — Santiago 100—60—50—38—54. — Knockmahon 123—101—80—85. — San Jose in Coburn 80—64—49—39—27. — Ballymurtagh 94. — Connors 13—10—2. — London 1. — Total, 2444 tons.

Copper ores for sale April 9. — Chilli 267—Knockmahon 241—Bearhaven 234—Cuba 168. — Ballymurtagh 113—Cronebane 91—Vigra &amp; Cloga 27—Aberderry 24—Mollard 15. — Cwm Sebon 12—Llandiloos 6—Bwlch 2. — Total, 1290 tons.

## LATEST CURRENT PRICES OF METALS.

LONDON, MARCH 20, 1845.

Sheet	"	"	13	0	13	10	0	Banca	"	"	3	11	3	12	0	7	
Bars	"	"	11	10	12	0	0	TIN PLATES—Chl., IX, box	"	"	1	16	1	18	0	0	
Scotch pig, Clyde	"	"	5	10	6	0	0	"	"	"	2	2	2	2	4	0	
Russian, C.C.N.D.	"	"	0	0	0	0	0	Coke, IX	"	"	0	0	1	12	0	0	
"	PSI	"	0	0	16	0	0	IX	"	"	0	0	12	0	0	0	
"	Gourief	"	0	0	0	0	0	LEAD—Sheet	"	"	17	15	18	0	0	0	
"	Archangel	"	0	0	0	0	0	Pig, refined	"	"	0	0	19	0	0	0	
Swedish, dr. arriv.	"	"	0	0	13	0	0	"	common	"	17	0	17	2	6	0	
"	on the spot	"	0	0	13	0	0	"	Spanish, in bd.	"	0	0	0	0	0	0	
"	Steel, fast.	"	18	18	18	0	0	"	American	"	0	0	0	0	0	0	
"	kegs	"	17	10	17	15	0	SPRINTER—(Cake)/	"	"	0	0	22	5	0	0	
"	Turf	"	0	0	83	0	0	ZINC—(Sheet)	"	"	0	0	30	0	0	0	
"	Tough cake	"	0	0	84	0	0	"	"	"	0	0	0	0	0	0	
"	Best selected	"	0	0	87	0	0	QUINCHILYEN	"	"	0	0	0	0	4	6	
"	Ordinary	"	0	0	0	0	9 9 1/2	REFINED METAL	"	"	0	0	7	2	6	0	
"	bottoms	"	0	0	0	0	10 1/2										
discount 24 per cent.																	
1/2 and 1/2 inch.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	
1/2 Discount 3 per cent.																	